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The Citrus Industry

VOL. 4, NO. 5

TAMPA, FLA., MAY, 1923

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Correct Principles Properly Applied

The methods of the American Fruit Growers Inc. as a nationwide organization have obtained strong endorsement. Other sales organizations specializing on a single crop have now found it desirable to take on the sale of other commodities in other sections, even in other states.

They saw the economies which AFG methods effected through keeping sales representatives busy the year 'round. They saw how deeply overhead expenses were being cut by avoiding payment of employees for unoccupied time. Therefore, the effort to cut their own expenses by following the example set.

However, the American Fruit Growers Inc. remains supreme in scope of commodities marketed, just as it is supreme in the wide and efficient distribution of the products it handles. That is how this organization is able to place its selling charges to growers on a level with the actual costs of some other organizations for performing less effective service, and yet earn a satisfactory profit for itself.

American Fruit Growers Inc.

Orlando



Have You Investigated "NAPP" Brand Fertilizers?

SCIENCE AND CHEMISTRY HAVE DONE WONDERS FOR THE WORLD

New and improved products are being discovered continuously by scientists and chemists and more money is being expended in research work by the governments of the world today than ever before.

Those countries that are not progressive in these respects do not offer much attraction and are not very worth-while places to live and do business in.

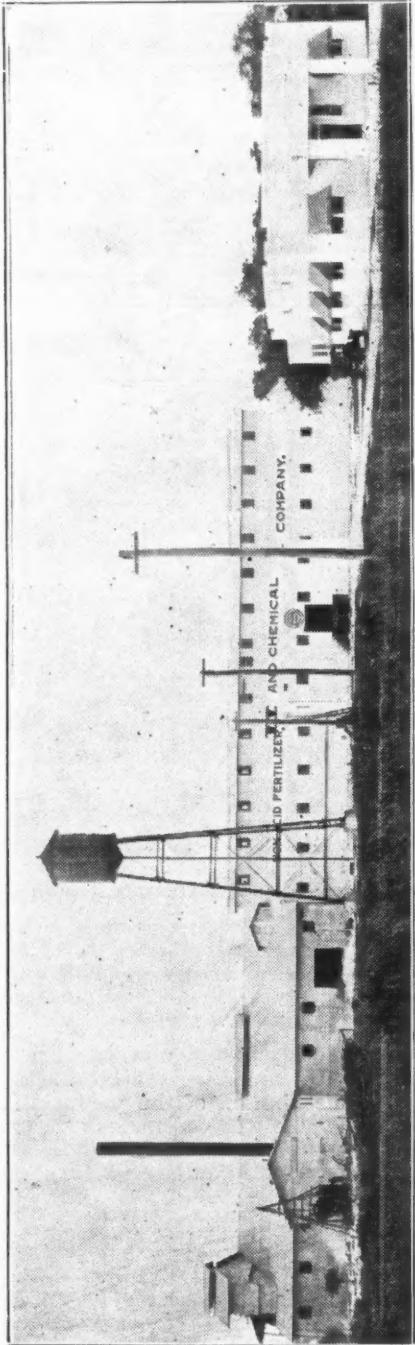
The American people have always been quick to appreciate any improved methods and the response we have had on "NAPP" Brand NON-ACID FERTILIZERS has been most gratifying to us.

It will cost you nothing to talk to one of our men and if you haven't had this new method of Fertilizer manufacture explained to you, we ask that you investigate before you buy. Write, wire or 'phone.

Non-Acid Fertilizer & Chemical Company

Mfrs. of Quality Fertilizers With the Acid Left Out

LAKELAND FLORIDA



THE HOME OF "NAPP" BRAND FERTILIZERS

Prepare Now-- For Your Next Planting

Planting season for CITRUS TREES is largely over for this year. Summer plantings, as a rule, are not as satisfactory as plantings made during the winter when trees are thoroughly dormant.

PROTECT YOURSELF

Now is the time to clear and thoroughly prepare your land. Plant a cover crop and assure yourself of the delivery of your citrus stock by placing your orders now for delivery after December first.

STOCK BUDED FROM OUR OWN TREES

Although this company owns 250 acres of citrus groves, there is not one acre of this for sale. All of our buds are secured from these groves, so the quality of our nursery stock is a certainty.

We are exclusively a nursery, and have no commercial groves for sale.

DON'T FORGET THAT OVER FORTY YEARS OF
SATISFIED CUSTOMERS HAVE MADE THIS THE
LARGEST CITRUS NURSERY IN FLORIDA

Glen St. Mary Nurseries Co.

Winter Haven

Florida

Glen St. Mary

Why continue to sell our citrus fruits for less money than they are worth?



We, the co-operating growers who market our own fruit through the Florida Citrus Exchange, continue to sell at top prices; grade, pack, quality, and volume considered.

Your fruit, if you are not a member of the Florida Citrus Exchange, continues to be sold in direct competition with ours, lowering the prices received by all of us.

Practically every car of fruit we sell has to meet considerably lower prices offered to the trade by the non-cooperative and speculative marketing agencies.

We are able to get better prices because of the consumer demand for Sealdsweet grapefruit and oranges, developed by years of consistent advertising, and by reason of our reputation for fair treatment of the trade.

Every Florida grower, whether or not a member of the Florida Citrus Exchange, receives less for his fruit under the present system than it is actually worth. Why continue the destructive methods which produce this result?

Five thousand and more of us who have tried the cooperative idea of marketing and have not found it wanting, invite the other Florida growers to join us in eliminating unwise competition from the citrus industry.

In the Florida Citrus Exchange we have built up an efficient, strong organization which is amply able to secure for every Florida grower all that his fruit is worth, whenever the present plan of selling fruit for less than its real value by many growers is abandoned.

Why not try cooperation instead of competition? Why longer accept for your fruit less than you should receive?

Join the Florida Citrus Exchange and receive the high dollar for your fruit. Consult the manager of the nearest association or sub-Exchange or write the business manager at Tampa, Florida.

The **FLORIDA**
CITRUS EXCHANGE

The Citrus Industry
THE ONLY PUBLICATION IN THE WORLD
DEVOTED EXCLUSIVELY TO CITRUS FRUITS
Issued Monthly
Representative of every interest-
Representing no special interest.

Vol. 4

TAMPA, FLA., MAY, 1923

No. 5

Florida A Horticultural Paradise

By L. B. Skinner, President Florida State Horticultural Society

Address by President L. B. Skinner,
Orlando meeting Florida State
Horticultural Society

When I first turned my steps toward Florida, in 1883, now nearly forty years ago, and as my life work undertook to become a horticulturist, I little realized what was ahead of us as horticulturists or as a state.

South Florida was then a wilderness, no railroads, no steamship lines to amount to anything, and sand roads without even pine straw to make them any easier to travel on. Most of the population traveled in two-wheeled carts, drawn either by the typical Florida pony or by a yoke of oxen, and the writer remembers in the early days seeing a woman driving an ox and a man yoked up together. It was a pioneer country and said to be hard on oxen and women, but sometimes the men got the worst of it. I had the first four-wheel vehicle in what is now Pinellas county. The roads were abominable, in many cases just endless sand, and it was not until some years later that the use of pine straw to make traveling faster and easier was used.

The groves were small, and mostly seedlings, and the idea among many natives was that two acres was as much grove as any man should undertake to care for, and as much as a man ought to want.

What prophet could have foreseen the development of South Florida or

the orange industry from what is was forty years ago to what it is today? Many cities have sprung up and grown from hamlets to cities with paved streets, electric lights, and all modern conveniences. The whole vast area of South Florida has become linked together with telephones, telegraph, railroads and paved highways, to an almost unbelievable degree of perfection.

It is a wonderful story, that outruns the story of the Arabian nights, this story of the wonderful development of South Florida. It is not strange that people who have been away ten or fifteen or twenty years should come to open their eyes in wonder, and to a man who has been here forty years the transformation almost passes belief. It is hard to realize.

In this general growth and transformation, the horticulturist has occupied a most important place, and the fruit industry has not only grown along with it, but it has grown in advance of the general growth of the state, and this notwithstanding the fact that in 1894 and 1895 the citrus industry was almost wiped out of existence. This was especially true of the northern belt of the fruit growing section. The result was only to move the industry two hundred miles south, and to start it off with even greater momentum than ever before.

Seedlings vs. Budded Trees

In the early days there was a wide difference of opinion between many

growers as to the respective merits of the seedling or the budded trees.

But the new pioneers coming in soon decided on the budded trees, as the way to a sure and certain and early income. The advocates of the seedling trees became fewer and fewer, until today they are almost extinct.

Grapefruit

The grapefruit was an unknown quantity as a market fruit. When Governor Safford planted the first commercial Grapefruit grove at Tarpon Springs, in Pinellas county, people smiled at his lack of business sense, and it was some years before the demand came to warrant anyone in planting grapefruit for shipping to the markets in the north.

Origin of the demand for grapefruit is variously explained. There are many stories about it. One of the stories is what happened at Tampa at the Tampa Bay Hotel, in the early days. Mr. King was then the manager. One morning a club member of one of the leading clubs of New York City, who was spending a few weeks at the Tampa Bay, met him in the lobby of the hotel. It was in the days before Volstead was ever heard of. He had been indulging the night before more freely than was good for him. He had a terrible headache, and had no use for anyone or anything. Mr. King met him and asked him what was the matter. The club man told him. "Oh, is that all?" said

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King. "I'll fix you in a jiffy." He sent for grapefruit and a little French brandy, prepared the grapefruit and gave it to his friend the clubman from New York.

About 2 p. m. the clubman came rushing up to the desk, demanding his bill in a hurry in order that he might catch the train that was at the door of the hotel, back to New York. King met him again. "What's the matter now? What's the hurry?" The clubman from New York replied, "I must get back to New York, and tell the boys about grapefruit. Eureka! I have found it." That is one story, said to be true; there are others probably equally as true. At any rate grapefruit came to be on the map, and sometimes in the halcyon days brought as high as \$18 per box probably to cure someone of the swelled head.

In those early days the individual grower felt how little he knew about the industry, what methods to follow, what land to select, what varieties to plant, how to cultivate the trees, how to fertilize them, how to combat the insects and diseases that at once began to afflict the grower.

The Fertilizer

Fertilizers were a mystery to the average grower, and the policy of some of the fertilizer people was to foster the belief that they had something that was not to be had by anyone but themselves. It was a great secret. But Prof. Rolfs in one of his early addresses before the Society said that the veil of ignorance should be lifted, and that no longer would any mystery prevent the grower from knowing what to use in the way of materials, and what not to use. The profit in those days to the manufacturer was fabulous, as one of the leading fertilizer manufacturers has recently told me.

For materials that would have cost in those days less than \$20, some of the fertilizer companies were charging \$40 for just mixing them together and adding a little sand or a little humus. These secrets have become the property of the Florida grower largely because the Horticultural Society has made the knowledge available.

The insects we have had to combat, the diseases that we have been afflicted with, have all been successfully combatted because the grower has had the assistance and guidance of men of knowledge and ability connected with the Society.

All this has warranted the confidence of the growers of the state in the Society, by which they have been led to success by such men as Dudley W. Adams, E. H. Hart, E. S. Hubbard,

Lyman Phelps, Cyrus W. Butler, G. L. Tabor, E. O. Painter, C. L. McCarty, P. H. Rolfs, W. J. Krome, Collins Gillett, and last but by no means least, our own H. Harold Hume, together with a long list of valuable members, who gave to us freely of their knowledge, experience, and their experiments. I remember the answer Dudley W. Adams made to one of my early inquiries as to the merits of the different root stocks. He stated that he could accomplish more in three years with the Florida rough lemon root as a stock than he could accomplish with the sour orange root in five years, and that was what made me decide to use in most cases the rough lemon root as a stock, and I have reason to thank him, and to remember his words.

Creator Class

The horticulturist is in the creator class. He takes dead, inert matter and by his labor in conjunction with the Master Creator he transforms this dead matter into life, into beautiful forest of fruit, flowers and plants. Fruits of delicious flavor and flowers and plants of infinite variety and of great utility and beauty.

He takes material of offensive odor and transforms into plants that give forth the odor of the orange blossom or the rose or the jessamine, wonderful fragrance.

The beauty created is of endless forms and color, and a constant delight to humanity who beholds it with the seeing eye.

Speaking reverently, makes one feel a trace of the pleasure that must have been God's when he created the earth and the fullness thereof, the sea and all that in it is, the sky, the firmament with its wonderful stars. And God saw that it was good. It must have been wonderful to call all these into being. Life and all that goes to sustain it, both plant life and animal life. God has created for us a wonderful earth, wonderful in its beauty, in its wisdom when in providing for us a way to live and grow. Not the least of His blessings is the privilege He has extended to us of helping to produce these forms of food and plant life, that we may in a small way enter into the joy of creating them.

It is a wonderful thing, for instance, to create or discover an orange like the Pineapple orange, easily the king of oranges, standing above its fellows in looks and beauty and flavor. What a world of enjoyment has come to thousands of people who have been privileged to look upon and eat this greatest of Florida oranges, and what a world of enjoyment will come to many in the future. It is one of the

fine things of our calling that we create for others. We build and others enjoy the fruits of our labor. We primarily grow our fruits and flowers that others may enjoy them.

We need to try to prolong the season in which such a fruit as the Pineapple orange is produced, that the consumer may have them for a longer period. There are millions waiting for us to accomplish this. If anyone has a late Pineapple variety we should have a GOLD MEDAL of Horticulture struck off for him, showing that we appreciate his work, as a benefit to the industry and a great blessing to mankind.

Royal Palms

Think of the enjoyment created by the planting and successful growing of an avenue of Royal Palms, or of Cocoanut Palms where the climate will permit them to grow. Think of the thousands who will every year for countless years look upon them and enjoy them.

Or think of the thousands upon thousands who will come to enjoy the Hayden Mango, or perhaps a better mango in the coming years.

Think of the possibilities wrapped up in the new varieties of Avocado that are surely going to come into being here in Florida. Perhaps in America alone, and especially in America's Paradise, SOUTH FLORIDA, will the fruits reach perfection of development.

Melting Pot

America has been called the world's melting pot. Here have come hundreds of thousands of the people of Europe, the people with the pioneer spirit, people who are not content with things as they are, but want to better their children, people with ambition enough to want to break away from the conditions that have borne down upon them and their ancestors for generations, through class prejudice, all over Europe. We of free America do not realize what this class prejudice means to the people on whom it bears down the worst. What a death-dealing weight is this class distinction in Europe. There is a closed door in every class in Europe that prevents one member of the class from going up into another class. In America we have no such doors, we are a free people. Opportunity is open to all. But we find that we have to put limitations on the admittance of the material we put into the melting pot lest the product get of too low a grade. Hence the limitation of immigration.

Florida, Too, Is in a Limited Way, the

Melting Pot of America

To this state come the citizens of all the states and mingle more than in

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any other state in the Union. They are attracted from everywhere. We have State Societies from everywhere, New York Societies, Ohio, Pennsylvania, Indiana, Illinois, and even Canadian Societies. From nearly every state there are enough to form a society. From all over this United States the people here mingle and mix together, exchange ideas, new features to the environment, and as a consequence we are developing a citizenship second to none in its progressiveness, and second to none in its morale. It is a wonderful thing for our state to become the melting pot of the good old U. S. A. A wonderful people will be the result, and will make Florida the greatest state in the Union.

Florida is Also the Melting Pot of the

Plants of the World

From the ends of the earth have come and are coming the choicest plants and fruits to be found by the men whom the Department of Agriculture sends out for this purpose. These plants are being brought to Florida and are tried out among their cousins from other parts of the world in the trial gardens of Miami, Eustis and other places.

Florida is becoming a melting pot for the plants of the world. When the different plants of the world strike this Florida climate it is interesting and fascinating to watch their behavior.

Take for example the Peen-To peach, of China. This was brought here many years ago by P. J. Berkman, of Georgia. When A. I. Bidwell, G. L. Tabor and other enterprising nurserymen of the state planted the first generation of seeds of this Chinese peach, what happened? The peach seemed to know that it had landed in the land of the free and the home of the brave, and began to see what it could do to make Florida more beautiful and desirable. These seeds produced fruit vastly different from the parent tree. There were round peaches, oblong peaches, freestone peaches, cling peaches, of a great variety, and mostly of most excellent quality, and there was born a new race of peaches for this country, and we owe China much for this contribution to our fruits. We are liable to owe much more to her in the near future.

There are other fruits with perhaps equally wonderful possibilities. Take the avocado and mango. The avocado especially offers a wonderful field of opportunity for development. In the government experimental gardens at Miami there are planted avocados from the West Indies, from Guatemala, and from Mexico. They are close

together and their branches mingle one with the other. The bloom mixes the pollen of both or all three of these varieties, anyway frequently two of them. As a result the seeds of the fruits of these plants would be expected to produce new avocados. As a matter of fact they are doing just that thing, and out of the garden Florida is going to have some wonderful avocados—a new generation, a new strain, as a result of that melting pot of the plants of the world.

When in Miami several years ago, I was given several fruits from these trees. I planted the seed with care. Today I have four trees that withstood a temperature of 27 degrees this past winter, without a trace of damage. They all show that they are of different strains, have a different foliage. I am in hopes that we shall have at least one desirable fruit from them. I understand that there are many, many seedlings of the avocado being planted with the idea of getting new varieties as the result of this melting pot arrangement in Florida. We may look for big results in the next few years. Our own Prof. Rolfs was a pioneer in this kind of work and the Rolfs Avocado is hard to beat. We hope that new and valuable and hardy strains will come into existence as a result of our climate and soil. America has taken peoples from east and west and from north and south and has produced the greatest, kindest, broadest people on earth, and I see no reason to prevent the same thing being accomplished in the plant world. With the best strains of avocados from the mountains of Guatemala, being crossed with the best strains from the Islands, and possibly from other places, there is bound to result some great surprises, and perhaps the greatest fruit Florida or any other country has ever produced. It is a situation fraught with possibilities. There are already a few pioneer fruits of fine quality, forerunners of what is to come.

The Mango

Then take the mango. While there may not be as great a future for it as there is for the avocado, still there is here also a chance for the Florida melting pot to show that it can produce that which is worth the attention of the horticulturist and the consumer who delights in the finest of fruits. There are mangoes here from the Islands, and from India, and from China. Someone fruited the Mulgoba from trees brought here from India. They then planted the seed, and as a result we have the wonderful Hayden. Have you ever seen a Hayden mango? It is one of the most beautiful of

fruits. Have you ever tasted one? If not, then you have a wonderful treat ahead of you. This is the forerunner of the vast number of new varieties that is to come. Here again the melting pot of Florida has material with which to work that may produce results that will have a vast influence on the future of the horticulturists of the state. With the Cambodiana from China, the Mulgoba from India, our own different varieties from the Islands, we have a situation that may produce a wonderful number of new varieties. These fruits under a new climate, very favorable to its growth, are bound to produce great changes when Florida whispers to them giving them new life.

Recently, by the kindness of the Department, I received two seedlings, grown from seeds of the Cambodiana imported from Cochin China and grown in proximity to some other variety, perhaps the Hayden, or perhaps the Mulgoba, I do not know, but this I know, that Mr. Simmons branded these trees with these significant words: "Care for these trees carefully, as they may represent a new mango of such quality as to be very valuable." The government is working to produce these crosses in this melting pot of plants. Let us hope one of these two will be a notable success. These are just two of many hundreds, so you see that the result looked for is bound to come sooner or later.

Plant a grove of mango trees, and one of avocado trees and be ready with a good sized tree, to transform it into the new and perhaps as yet unborn variety of avocado or mango by the new process of budding or grafting large trees of these varieties, as adapted to Florida by our fellow member, Mr. Barney, of Palma Sola.

Garden Week

The Garden Magazine is proposing a Garden Week, to be observed all over these United States this April. Florida might well start Palm Week, to be observed all over Florida, planting the most palms that will grow. Plant clumps of them, plant avenues of them. Not many years ago, when he first came to the state, T. Ralph Robinson, formerly of the Terra Ceia Estates, now of the Department at Washington, planted an avenue of royal palms on their property on Terra Ceia Island. It is now the most beautiful picture on the island, and will be for many years to come.

Think of the constant source of pleasure and enjoyment this avenue will be to the many, for years and years.

A Plant Palms Week especially ap-

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Marketing Future Florida Citrus Crop'

By J. C. Chase at Meeting of State Horticultural Society

What the future has in store for us is a most fascinating subject for speculative fancy. It is the part of wisdom to consider the future as it may affect the marketing of the coming crops of Florida citrus fruits. None of us are able to surely penetrate the conditions of next year, to say nothing of the next decade. What more distant seasons have laid up for us involves so much imagination and speculation that it need cause no loss of sleep.

A variety of elements enter into the proper consideration of this subject of marketing future crops of Florida citrus fruit and the bugaboo of overproduction. The principal factors in producing and marketing all perishable products are supply, demand and weather conditions, and frequently weather is the controlling one, as weather conditions affect both supply and demand. Climatic conditions in the producing territory increase or diminish supplies and in the markets favorable weather stimulates a demand while unfavorable weather hinders distribution and frequently turns a limited quantity into an over-supply.

The distribution that is of real service to the producers is the one that makes proper surveys as to the normal maximum and minimum per capita consumption of the whole country and the normal consumption during each part of the season. Such a marketing agency is then competent to advise growers with some degree of accuracy as to what things or conditions influence an increase or decrease in that normal consumption, such as crops of competitive fruits, competitive food, changes in buying power due to fluctuations of prosperity of consumers.

Demand for the products often affects values to a greater extent than an increase or decrease in the supply and is always a vital factor in controlling values. It is impractical and would be a violation of both law and moral rights for producers to combine to control and regulate production or acreage. The providence of God only may and should regulate the size of crops. Consuming demand is regulated by weather conditions, competitive fruits, interest of dealers, such as jobbers and retailers or the energy with which these dealers display and push the sale of the product.

The dealers' interests can best be secured by a stable market, which reduces the chance of loss from market fluctuations and by honest and attractive pack of healthy, sound fruit. Stability of market can be secured by so regulating shipments as to approximately fit the supply to demand. Supply can always be closely estimated by the use of intelligent effort, but the prospective demand can only be based on what is the natural, normal demand and by then deducting or adding the effect of other influences such as advertising, supply and value of competitive foods, trade sentiment and abnormal weather. Weather cannot be predicted but an intelligent study of the other items is always important.

Unquestionably the Volstead Act has greatly increased the normal consumption of fruit as it has increased the demand for all luxuries and for better homes. The enormous amount of money spent for liquor, especially by the great middle class, now goes for the better things of life. Some competent authorities estimate that the normal consumption of fresh fruits and vegetables has been increased from 20 to 30 per cent by the Volstead Act.

The maximum of normal consumption of Florida citrus fruits will not be known or passed until such a time as we cannot sell our whole crop of good fruit at a profit.

The crying need now is for growers and distributors to recognize the fact that consumers want only good sound fruit of the best and most palatable varieties. Quality starts at the tree. It behooves the Florida citrus growers to utilize agencies placed at their disposal by the State and Federal Departments of Agriculture in controlling and overcoming diseases to trees and fruit.

Consumers have become such habitual users of fruits that they are educating themselves as to the quality of fruit and more and more will they discriminate on quality. They will refuse to buy or eat diseased or unsound fruits, and dealers will then rightly refuse to handle it. They will not eat immature or unappetizing fruit. The consumer today is rapidly learning what to buy and what to leave alone. When growers learn to grow only good eating and undiseased fruit, and

packers and distributors learn not to handle fruit known to be fruit of poor carrying quality, and try to represent it as good stock, a great advance will be made. It is important that growers remember many consumers buy by the eye making it necessary to produce fruit of good appearance.

Unhampered transportation, combined with equitable freight rates, are imperative. Well equipped railroads everywhere that can insure rapid transit of our fruits to all markets, are vital to the certainty of its proper distribution. The whole future prosperity of the Florida citrus industry is dependent on the ability of railroads to render good service.

Good transportation service to perishable products begins with equipment, and equipment means cars especially constructed to give proper carriage either under ventilation or refrigeration to the product with which it is loaded.

Equitable freight rates, lower and adapted to give wider distribution to Florida citrus products, are necessary to the successful marketing of our rapidly increasing volume. Nothing would tend quicker to stem the tide of adverse criticism than immediate and voluntary action on the part of transportation companies in meeting and co-operating with growers and distributors in solving some of the problems that are essential to the prosperity of all.

A bugaboo is defined as anything imaginary—to excite needless fear. The object of this paper is not to ring an alarm bell or to cry wolf, but to look facts fairly in the face. The cry of overproduction met the writer forty years ago when he first came to Florida, and was killed by the freeze of 1894-95 and succeeding cold winters. The bugaboo of overproduction met the writer in California in 1896 and is still there—and has come to life again in Florida. However, in spite of constantly increasing production the past few years will go on record as prosperous to average growers. We must expect lean as well as fat seasons, bending our efforts always to the production of a fine fruit of the varieties commanding the highest prices and occupy a place out of reach of any bugaboo.

Some Problems of the Satsuma Orange Grower

By H. G. Clayton, Agricultural Extension Division, Gainesville

The Satsuma, as most of you already know, comes to maturity at a time when there is a scarcity of citrus fruits, and it will shorten the gap between seasons. This is an advantage to Florida in that we will more nearly be able to keep people eating citrus fruits the year round. It is advantageous to the Satsuma growers in that there will be little or no competition for this type of fruit during the marketing season.

The growers are fortunate in having planted only one variety of Satsuma, the Owari, and this, of course, is all on citrus trifoliata stock. This was due to our nurserymen propagating nothing but the Owari. Therefore the Satsuma in western Florida means an Owari grown on citrus trifoliata stock.

There are at present in western Florida 3,144 acres of Satumas, according to the best information obtainable. This is divided into 1715 acres as shown by the Plant Board census completed during the winter of 1922, and approximately 1439 acres set since this census was completed. Their census did not include the trees set the past winter. All figures are based on 70 trees per acre. The census showed fully 95 per cent of the trees were under bearing age.

Soil Types

Roughly speaking, we have three soil types upon which plantings are being made.

1. Sand Hills: There is a large area composed of high, sandy ridges, some of which has a good clay sub-soil and all of which has a certain percentage of clay mixed in with the sand. This scope of territory lies mainly in the southern end of Jackson county and thru Washington county a little south of the center of the county. This soil is splendid Satsuma land, it is uniform over considerable acreages, is warm, has good air drainage, also water drainage, and contains enough clay to hold moisture well.

2. Clay Lands: These lands vary from stiff red clay to the yellow colored clay and on to the sandy loam pine land with good clay sub-soil. These are soils which, in my judgment, should have elevation where Satsumas are to be planted. They are, as a rule, farther away from the coast than the ridge section and, if not elevated, have a tendency to be cold. Some of these soils are very fertile and trees grow rapidly when planted

on them. They will require careful attention in order to make them produce the highest quality fruit.

3. Coastal Lands: There is an area between the sand hills and the coast which is well suited to growing Satsumas. This area has water protection afforded by nearness to the gulf and to numerous bays and bayous which indent the coast. Some of this also has considerable elevation. The soil here is mostly pine land with clay sub-soil and here and there we find hammock. Some of this land requires drainage.

Variety of soil is therefore one of the problems before the Satsuma grower. To produce the high quality fruit will require different methods of fertilizing and of cultivation for each soil type, and these have yet largely to be worked out.

Satsuma Growing a New Industry

Comparatively speaking, the growing of Satsumas is a new industry in Florida, and a large number of people going into it have had no horticultural experience. In some sections none of their neighbors have had this experience. Then we have no great store of either experience or experimental work to draw from except in disease and insect control. There is a great amount of educational work to be done. Many growers have made trips to Baldwin and Mobile counties in Alabama to see what these people are doing and how. Commercial plantings were made there in 1910 and they are now shipping around 600 cars a year. With a new industry we may expect the usual crop of developers, some of whom will know what they are doing and will be a great help to the industry; others will be wildcatters who will hinder rather than help. Our hope is that there will be enough of the right type to keep the undesirable from getting much of a start.

Bring Trees Into Bearing

In my opinion our greatest present problem is to bring a large per cent of the plantings into bearing. Estimates show that only a small per centage of the total plantings made in the citrus belt ever come to bearing age and in Alabama it is estimated that less than 50 per cent of the trees planted will ever reach a profitable age. We are fortunate in having one or more plantings in almost every county on a large scale, the owners of which have confidence and finances enough to see the proposition through.

This will be a stimulus to the little fellow because we have all sized plantings from one tree up to eighty and a hundred acres.

For the present we are under a handicap in regard to fertilizers; the farmers are used to corn and cotton fertilizers which contain kainit and muriate with little or no organics and these are practically the only kind of fertilizers the near-by manufacturers are putting out. Freight rates are high from Jacksonville and this, coupled with the fact that our farmers are not used to paying for high priced goods containing organics, makes it hard for the present. We believe this will soon be solved as some of the manufacturers are now interested and have made up some goods on formulas which have been submitted to them.

For the future we must stick to good trees properly planted and cared for. We must have experimental work with fertilizers both as to analysis, number and time of applications on each of the soil types.

Shortage of Trees

To some this is the big problem in Satsuma growing; the nurseries are already sold out for 1923 and 1924 planting and some have booked orders for 1924-25. The present quarantine laws are not to be changed, so no trees can be brought into the state. To me this is not a bad situation; it will hold back some of the plantings, but the man who means business can grow a crop of beans on his land and get it in condition so in the end he will lose little or no time. Some folks have the Satsuma fever; if the fever is all they have, it will be gone in a year's time and the industry will be better off that the fever patient did not plant, because most of them would get tired before the trees came into bearing and these plantings would be only eyesores and never would amount to anything. Our nurseries are doing their very best, and in a year from this fall will be in a position to care for the demand, unless some serious mishap befalls them.

Marketing

At the present time this is not a problem, as all the Satsumas produced find a ready local market at 1½ to 2 cents apiece right at the grove. Car lot shipments are only a little way off

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The Citrus Industry

ISSUED MONTHLY

By

ASSOCIATED PUBLICATIONS CORPORATION
TAMPA, FLORIDA

S. L. FRISBIE, Editor and Manager

TELEPHONE:

Editorial and Business Office 4819

Subscription \$1.00 per year in advance

Entered as second-class matter February 16, 1920, at the postoffice at Tampa, Florida, under the act of March 3, 1879.

Branch office and production plant, Bartow, Florida.
A. G. MANN, Production Manager, to whom all communications in regard to job printing and requests for estimates, should be addressed.

GROVE CALENDAR FOR MAY

Timely Suggestions for Grove Operations During the Present Month

Next month is summer planting time for citrus trees; plant good healthy nursery trees that have been inspected and certified by the State Plant Board.

Prune late bearing citrus trees as soon as crop is removed.

If citrus grove is infested with scale or white fly, spray thoroughly with oil emulsion. White fly may be controlled by a fungous parasite; calculate the number of cultures of this fungus that you will need; then write to the State Plant Board at Gainesville for them.

The cottony cushion scale may be controlled by a natural enemy, the Vedalia or Australian lady beetle. If you have the scale in your grove and do not have the lady beetle, communicate with the State Plant Board.

If rust mites are appearing in the citrus groves, add soda-sulphur to the oil emulsion used against the scale and white fly.

Spray grapes with 4-4-50 bordeaux to control anthracnose and black rot; repeat every two weeks if necessary.

GROVE PROBLEMS

Beginning with the June issue, The Citrus Industry will inaugurate a department for the discussion of grove problems, in which we shall undertake the solution of many of the everyday problems which confront the grove owners and particularly the beginners in citrus culture.

This department is the outgrowth of frequent inquiries on the part of readers who have sought the advice of this publication on numerous practical problems of everyday work in the grove.

Heretofore, these inquiries and problems have been submitted to experts in different lines of grove culture, and we believe that this has resulted in the solution of many knotty problems. However, the information thus given and the advice solicited has been confined to the inquirer himself.

We are now undertaking to make this information available to all readers of The Citrus Industry through the new department to be conducted under the general title of "Grove Problems." Questions submitted to this department will be printed and the answers given in each issue of the magazine, that all readers may benefit by the information thus elicited.

In casting about for a suitable departmental head for the new department, the management of The Citrus Industry has been fortunate in securing the services of Mr. L. DeWitt Niles, of Lucerne Park, Florida, who is known as one of the best posted and most practical grove managers and developers of the state. Equipped with technical knowledge of the highest order, Mr. Niles has added to this the practical knowledge which is acquired only through long service in actual grove work.

As the actual manager and developer of the great Lucerne Park project, one of the first of the really big citrus developments of Florida, and one of the most notable from the viewpoint of the success achieved, Mr. Niles met and solved most of the problems in grove culture with which the beginner in citrus culture is confronted. He was in active charge of this big development from the time of its inception until after the development had been brought into successful bearing and become noted among the citrus achievements of the state.

Readers of The Citrus Industry are invited to submit their problems to Mr. Niles for solution. It is more than likely that in his long experience in grove work, he has met with the same or similar problems, and he will gladly give you the benefit of his experience and observation. The questions submitted and Mr. Niles' replies will be printed each month in The Citrus Industry, and we believe will prove to be one of the most interesting and beneficial features of this magazine.

Let us have your queries, being careful, however, to confine them to actual grove problems, and being careful also to describe your conditions so clearly that they may be fully understood and intelligently discussed in the light of the knowledge thus conveyed.

The last meeting of the Florida State Horticultural Society was in many respects the best ever held during the thirty-six years of its existence. Much of this credit is due to the tireless efforts of President L. B. Skinner and Secretary Bayard F. Floyd. The Society and Florida horticulturists are fortunate in having men of such calibre and unselfishness at the head of horticultural activities in the state.

The Citrus Industry is glad to be able to reproduce in this issue a number of important papers read at the recent meeting of the Florida State Horticultural Society. Others of equal merit will appear in later issues.

WHAT DOES YOUR CROP COST?

So far as we are aware, no one has ever undertaken authoritatively to figure out the exact cost of production and the average per acre profit of citrus production in Florida as a whole, or for any single county of Florida as a whole. In view of the fact that such figures have just been compiled for Orange county, California, it would be both interesting and instructive if similar figures covering a typical citrus producing county in Florida could be made available. While these California figures cannot be taken as an index of either the cost or the profits of the average Florida grower, they will at least serve to set a lot of growers figuring—which will not be at all a bad idea for the individual grower or for the industry in the state as a whole.

Specialist R. V. Wright, of the Farm Management division of the Agricultural Extension Service of the College of Agriculture, University of California, has just released copy of his first findings, following a three years' study during which detailed cost records were kept. His first report covers Orange county for 1922.

Allowing \$198 per acre (interest at six per cent upon the land) and cultural costs of \$263.60, he finds that \$461.60 per acre represents average cost for an average yield of 225 packed boxes, making the average box cost to the grower \$2.05.

With the highest developed form of handling through association picking, hauling, packing and shipping, along with marketing, the average net returns were \$3 per box. In round terms, with a gross cost of \$461.60 per acre and a gross income of \$675, the grower had a net return per acre of \$213.40 on an investment of \$3,300.

The outstanding feature in the Wright report is the fixing of interest on investment covering the real investment in land, improvements, equipment, live stock, and supplies used exclusively for the citrus enterprise. On the other side of the ledger, the overhead includes taxes, insurance, depreciation on trees and other improvements not including dwellings, and on equipment as well as minor repairs. There is no allowance, however for frost risk, losses due to glutted markets, or unusual competition. Other industries require a certain percentage set aside to cover emergencies—not so the citrus.

Boiled down to plain English, the average Orange county grower worked last year for a profit of \$213.40 per acre, so that to have received a very modest living, on a basis of \$40 per week for his services as manager, he would have had to have a 10-acre average grove, calling for an investment of something over \$33,000. Not many business men having a \$33,000 investment, however, would trust such property in the hands of a man who is only capable of earning a salary of \$40 per week.

The grower, therefore, cleared just 95c a box for his fruit—even though he enjoys the highest developed association advantages known anywhere in the world, operated without a penny's profit to anyone. He averaged 225 packed boxes to the acre, so that he actually earned a little less than \$225 per acre, or, to be exact, \$213.40 per acre, he, the grower, assuming all the risks in the way of weather, including frosts and extreme heat.

The last item in the report reads: "Average cost of production per box is the true production cost to the growers. It does not include harvesting, transportation and marketing charges."

There is a lot of meat in this last item.

He prefaces his report as follows:

"Not all growers are entitled to a profit each year, but over a period of years the progressive farm business man should get a profit commensurate with the profit secured by the business man in other types of industries. The profit should be based on the average cost of production taking into consideration interest on the investment, depreciation, the grower's own labor, as well as other cash operating expenses."

THE SATSUMA FIELD

The Citrus Industry is a firm believer in the possibilities of Satsuma development in the counties of West Florida. We are firmly convinced that within a few years, Satsuma plantings in the West Florida territory will be as common as are citrus groves in South Florida today.

The territory lying immediately along the Gulf Coast in the latitude of 30 to 31 degrees is the ideal section for the production of this delicious and hardy citrus fruit. Here the trifoliata root reaches its perfection of development, and no other root stock can compare with it for the budding of Satsumas. The coast regions of Alabama, Mississippi and Louisiana, and some sections of the coast region of Texas, have thoroughly demonstrated their adaptability to the culture of the Satsuma orange. West Florida possesses much the same soil, has about the same rainfall and very similar climatic conditions. It has the advantage of being protected by state law from the importation of infectious diseases and insect pests which have beset the Satsuma growers in some of the states further west in the early stages of development in those sections.

Then, too, the development work in the West Florida territory appears to be in the hands of men who have the knowledge, the means and the determination to make the industry a success. They have, too, the faith of their convictions, and are going about the development in a business-like manner which bespeaks success. The Citrus Industry believes in the new industry and in the men who are promoting it.

An increase of 26 per cent in the number of citrus trees in Florida groves in the past three years is the official estimate given out by the State Plant Board. In some counties of the state the increase has been far in excess of this average for the state as a whole.

Florida is not proud of its lease system nor its lash system. Both are slated to go—and the sooner the better it will be for the good name of the state.

Growing fruit and marketing fruit are two widely separate problems. It takes a broad-gauge man to be able to do both successfully.

The beginner who is willing to learn soon becomes the expert who is able to tell what he has learned.

Prevention of Decay

By H. G. Gumprecht, Bradentown

By H. G. Gumprecht, Manager Manatee County Citrus Sub-Exchange, Bradentown, Fla.
At the Horticultural Meeting, Orlando, Fla., April 18th, 1923.

It is difficult to avoid duplication in the discussion of this subject, since it has had so much consideration in citrus circles. There is no topic of greater importance to the industry, however, since it so keenly affects the financial recompense of the grower—decay too often meaning the difference between profit and loss. Decay at destination points is still too heavy and too frequent, despite all efforts to reduce it. The scientific and technical causes have been so ably handled by others that I shall confine my brief remarks to the practical problems involved in moving fruit from trees to packing houses and into the cars, basing them on fourteen years of active, personal observation.

The Florida Citrus Exchange has issued a booklet on decay, a copy of which can be had for the asking, that gives much valuable information. Years of hard labor have been devoted to decay problems by competent men in the experimental station at Gainesville, both the Federal and State authorities co-operating to combat the common enemy.

Services of the government experts on decay have been of incalculable value to the citrus industry. They are entitled to much credit and sufficient funds always should be available to efficiently maintain their departments. Still greater value would be realized if growers would more closely follow the advice of these experts.

Picking and Hauling Fruit in Field Boxes

No field boxes should ever leave a packing house that have not been dipped in a disinfectant solution known to be a sure preventive of Blue Mold. Experience has proved that the sooner fruit gets from the tree into the car, the better will be its keeping quality. Therefore, prolonged picking, such as is sometimes done by the grower himself, taking from three to five days to fill a car, is a decided mistake and its practice should be discontinued.

We must recognize the necessity of suitable field equipment. No carpenter can build a house without the proper tools and no fruit can be handled from the tree to the house, as it should be, without up-to-date facilities,

It matters little whether fruit is picked by the day or box, but it matters very much if there is failure to apply a checking system.

Each picker should be given a number and a duplicate of this number placed in every field box picked by him. When the fruit arrives at the packing house, it is then no trouble to check up on clipper cuts, long stems, etc., placing the blame exactly where it belongs. This system is also a complete check on the picking foreman. Much fruit is picked without these precautions and is subjected to injuries which can and should be prevented.

Filling of Field Boxes, Loading on Trucks; Hauling to Packing House

Carelessness in this particular part of the work is responsible for a great deal of the damage to fruit which leads to decay and there is vast room for improvement in our methods, for a large percentage of such mechanical injuries are avoidable.

A casual observer recently remarked that it seemed to him pickers and loaders were working as if they had lead balls to handle instead of perishable fruit. Unfortunately, many packing houses' careless methods justify this circumstance and a great deal of the help seems to have no conception of the delicate and highly perishable nature of the commodity they are preparing for market.

It would seem that a school of education and training in the proper handling of citrus fruits has about become a necessity. The field foreman or picking boss should be held personally responsible for every field box filled above the top level, for he must know that when another box is piled on top of it the fruit will be bruised and injured. However careful the driver may be, there will be constant jamming and crushing of delicate cells in hauling the fruit.

Unfortunately, many drivers ignore speed ordinances and entirely forget the character of their loads. Two men should always be employed in the loading and unloading of fruit, as the standard field box is too heavy to be handled by one person without dropping it part of the way. We should always remember that Florida grapefruit and oranges are full of juice and naturally heavy. The extra man for handling will always prove a good investment in reducing decay.

Keeping Packing Houses in a Sanitary Condition

No waste of any kind should be al-

lowed to accumulate in a packing house, for it is a breeder of many germs and diseases which cause decay. In the average size packing house it pays to keep one man on the job of maintaining cleanliness. It is very practical to install a dummy carrying belt on which all culls and trash can be thrown at any time and carried outside the house, whence the waste can be hauled away. This plan makes the accumulation of trash in the house an impossibility and will greatly reduce the tendency to decay.

It is vital that the fruit be packed in the proper pyramid style, which creates a natural bulge and a solid pack, by far the best known preventive of decay. Such a pack also appeals to the trade and assists in getting better prices.

Loading of Cars at Packing Houses

The experience of years has demonstrated that when a car is properly loaded two tiers high, and carefully stripped, with the slack taken up, the load will not shift, barring accidents, and will carry to any destination in good condition.

There is right here one point which I believe should receive the careful consideration of growers—that of having cars furnished in sanitary condition. If we should be unable to convince the railroads that it is their interest to furnish clean cars, it may be that we shall have to resort to the law covering this point. Personally, I am inclined to think that we have too many laws now and that the railroads and shippers alike have suffered by over-regulation of the former.

I firmly believe that if the State Horticultural Society will at this time appoint a committee of five or seven leading growers or their representatives with instructions to invite the managements of the railroads operating in Florida to be represented at a meeting, at some convenient city in the Citrus Belt, Tampa for instance, discussion of the question of clean and sanitary cars more than likely would be productive of tangible results. More laws mean more money collected for taxes and in this case, legislation might add to the operating burdens of the carriers. Increased expenses in the conduct of the railroads are not likely to be helpful in getting lower freight rates.

In proportion as we can organize ourselves to make efficient endeavor to improve our picking, packing and loading practices, I feel assured we

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Eighteen Million Boxes Citrus the Prospect for Next Season

(During the recent meeting of the South Florida Press Association in Lakeland, a number of the members of the Association were asked by the management of the Lakeland Star-Telegram to contribute articles on various subjects. Among the articles so contributed was the following by Mr. Frank Kay Anderson of Orlando, retiring president of the Association. The article is reproduced here in the belief that it contains much valuable food for thought on the part of progressive Florida citrus growers.)—Ed.

In stipulating our subject the editors evidently had in mind that we largely make our personal livelihood out of citrus activities, being an example of the reformed newspaper man—if such a thing is within the realms of possibility. However, it is more of a relapse than a reform, because our earliest activities were connected with the usual odd jobs of a boy on a Florida farm where oranges were a principal concern, the now well known grapefruit being then a product of purely speculative future value.

The next shipping season very probably will see a production in Florida of something in excess of eighteen millions of boxes of oranges and grapefruit. Such a possibility even a few years ago would have alarmed every grower. Today we can face it with quiet assurance. The quality of our citrus production is being improved very largely. The facilities for the distribution and sale of Florida's citrus crops have been expanded and improved tremendously; and the element of keen competition among the marketing agencies charged with the responsibility of disposing of our citrus crops is the best guaranty of continued and continual improvement in their methods. Transportation facilities have been largely improved also, though the improvement perhaps has failed to keep pace with those made in other directions.

In Orlando this week, before the State Horticultural Society, Mr. J. C. Chase, who has had approximately forty years' experience in connection with marketing Florida citrus fruits, sounded a note of warning. He suggested it is going to be necessary for us to obtain better and quicker transportation, and upon a more economical basis, if the job of disposing of these increasing citrus crops is to be done as successfully as it needs to be. This past season the movement of our per-

ishable crops has been slower and less efficiently handled than in pre-war times. There were reasons for this, but we need to have all the reasons, the excuses and the alibis removed. We need, and must have, prompt and efficient transportation to our markets. We are today paying, after obtaining one slight reduction, just fifty per cent more freight per box than in pre-war times, which is at least fifty per cent too much from the standpoint of the citrus industry here, regardless of how the transportation interests may feel about it. We are going to need the sympathetic interest of the carriers who convey our goods to market in working out our problems of the early future.

We have no wish to deprive California of any present markets, but we should have the aid of our own railroads in widening our outlets for Florida crops. It happens to be eighteen miles further from Los Angeles to St. Louis than it is from Arcadia to Denver. By what process of logic, by what application of fundamental business principles, can we then justify the fact that Florida must pay a vastly higher freight rate on its citrus fruits to Denver than California pays to lay its citrus products down in the St. Louis market? There are hundreds of other instances where similar discrimination might be cited. Some of these, at least, should be removed soon. That partly is what is meant by speaking for the sympathetic interest of the transportation companies which serve us.

Up to now Florida has been handicapped greatly by the inability of its people to get together and present a united front on matters relating to their own interests. Many potential movements for the common good have failed because they were opposed from inside the ranks of Florida growers and shippers. Many times such opposition, most unfortunately, has been based upon the narrowest of selfish motives. Some were afraid that others might get undue publicity and credit for work in connection with such an undertaking. Therefore they preferred to belittle and discredit it, and thus kill it off, even though they and all other similar interests would have profited through its success.

Providence be thanked, there are signs now that many are awakening to the real state of affairs. The motives of those who stand back and criticize, and who refuse to participate in such undertakings in the future are going to be scrutinized sharply. Those who

are inspired by jealousy and selfishness, or who gain their inspiration from sources which might be pinched when the shoe is fitted, must be willing to submerge their selfishness to the common good or relinquish whatever they may have had of leadership here.

The time is almost here when Florida is going to be a united Florida in working out some of the problems she faces; and be entirely willing to accord all due credit to whoever may present the solution for any one of them. These increasing citrus crops are going to make that possible, because they will make it necessary. We are probably going to market eighteen million boxes of oranges and grapefruit next season with very fair success. When we have reached the proper degree of unity, we shall face a thirty million box crop possibility with entire calmness. It matters not if there are fifty marketing agencies on the job, and dozens of different sorts of growers' organizations for different purposes. If we develop the proper sort of unselfish regard for the welfare of the industry as a whole, we can make Florida the biggest and most successful producing area for citrus fruits in the world, and obtain for ourselves a degree of prosperity above anything we now contemplate.

\$20,000 YIELD FROM 26 ACRES OF CITRUS TREES

H. E. Cornell, manager of the Glenn St. Mary's Nurseries at Winter Haven, and H. S. Rogers, of the same town, were visitors here last Thursday, looking over their grove interests, which are under the management of Rupert Smith. It is understood that from 26 acres of trees in a tract owned by the two men, fruit which brought \$20,000 was taken during this season.—DeSoto County News.

BUILD NEW PACKING HOUSE

Construction work is rapidly progressing on the new \$75,000 packing house of the Lakeland Citrus Growers' Association. The building is to be of hollow tile, finished in buff stucco along Spanish lines. It will be one of the most attractive, as well as most, modernly equipped packing houses in Florida.

When every Florida farm at least feeds itself, this will be a happier and wealthier state.

Grafting Old Citrus Trees

By John W. Barney, Bradenton

(Being a paper read before the 36th annual meeting of the Florida State Horticultural Society at Orlando, April 18, 1923.)

Mr. President:

In response to your request I submit the following short paper.

The subject is one which should be of great interest to all of our fruit growers, if not to all Florida horticulturists.

It is rarely the case that extensive plantings of fruit trees are not spotted with unsatisfactory, unproductive trees. The method of grafting herein briefly described may, if well tried out, afford a means of bettering our average tree production, with a great saving of time and a minimum loss of the capital invested in tree growth.

About the middle of the summer of 1922 my attention was called to a magazine article describing some very interesting work along new lines of propagating nut-bearing trees by Dr. Robert T. Morris, of New York. This led to the purchase and perusal of Dr. Morris' book "Nut Growing," and the suggestion of the possibility of adapting Dr. Morris' methods to our Florida needs in working over and propagating citrus, avocado, mango and other sub-tropical trees. Experimental work already done indicates great possibilities, and while it is too soon for definite statements, still, the hope lies with us for great things in the future.

Dr. Morris' methods are new; and the applying of these methods to our Florida needs is also new, but, as Dr. Morris suggests in his book, "Sumerian tablets describing this sort of work may be found which will disprove these statements."

Seedling fruit trees, and those fruit trees which do not come true to name, or are unfruitful, are of doubtful value; and to top-work trees of this character by budding them, particularly if they are of large size, is something of a job; and to cut them down and use the resulting sprouts for budding is usually very wasteful, in that it throws out of commission a large part of an elaborate root system.

Grafting by the Morris paraffine method makes it possible to change the character of such trees without severe shock to the tree, and the work may be done more or less regardless of the thickness of the bark, or the condition of the tree with re-

gard to its being dormant.

The writer has, at his place, orange grafts, on old grapefruit trees with lemon stocks, done by this method while the trees were so dormant that the bark had to be cut loose before the graft could be inserted, which made a perfect union in November and December, and which on April 1st held bloom and young fruit.

Avocado grafts have taken all thru the autumn of 1922 and up to date, though the early spring seems to be the more acceptable time for working this class of trees.

Mangos, grafted in August and later, have put on four flushes of growth and are now (April first) starting active growth again; and while we have not carried our guava experiments quite so far as with the other plants, still they look very promising and are covered with fine new growths on the grafts.

The method of grafting is the same for all of these trees. The tools needed are a keen-edged knife with a large handle; a chisel or a gouge, about half-inch; some kind of a heater to keep the paraffine in condition to use; a small brush for painting the paraffine (camel's hair or fiber, not bristles); wire brads for nailing; raffia or twine for tying.

A small light box with a strap for handle, and cushion to sit on, is handy to carry these trinkets in; and if the box is right there will be room for a small saw and pruning shears.

Scions are cut of any size; we have used them with success a half inch or over in thickness. Budwood that is too soft to withstand the rough handling incident to pushing home the graft is discarded. The scions, as soon as possible after being cut, are tipped with warm paraffine on all cut surfaces and kept humid with a cloth or sphagnum dampened with water, or, better still, a very weak solution of copper sulphate.

The grafts may be inserted close to the ground, where they are easily protected in case of chilly weather, or, as we prefer them, at the base of the first large branches, the point being to balance as quickly as possible a large root area with a proportionate area of top growth. Roots that find themselves not needed in the general economy of things soon quit the job and that much of the expensive tree structure is lost.

In selecting a location for the grafts, preference should be given to

the flatter surfaces as providing a more certain close contact of the cambium layers. The location of the graft having been determined, and you care to be very particular about your work, you may brush over the spot with a weak solution of bluestone and remove the surplus moisture.

With a chisel or gouge make a glancing cut about two inches long through the bark to the wood. Make a cross cut at the lower end and remove the chip. This leaves a vertical niche, exposing at its lower end the wood beneath the bark, with a flat shelf, so to speak, at the lower end just about the right size for the upper part of the graft to rest in. As soon as this cut is made paint it with warm paraffin.

Prepare the graft with as many buds on it as you want. One bud is enough if you can get it placed without damage by rough handling. We prefer two buds, but if the graft is a terminal with several buds too close to be used separately, we use them just as they are.

Cut the lower end of the graft in wedge shape, one side of the wedge longer than the other, the point of the wedge being about the middle of the diameter of the wood. This calls for a sharp knife, with large handle for firm grip, and a cut that is flat. The success of the operation depends greatly upon the fitting of this cut surface to the body of the tree.

Now mark the width of your graft on the long side of the wedge on the corner of the little shelf at the bottom of the niche already cut in the tree and, with your knife or a chisel, make two parallel clean cuts through the bark down from the shelf about as long as the long side of the wedge of your graft, gently lift the upper end of this tongue of bark and slip in the graft with the long side of the wedge next to the tree, press the flap of bark firmly against the graft to make sure that it is up tight against the wood of the tree, nail it fast with a three-quarter inch number eighteen or number nineteen wire brad at the upper end of the bark flap and through the center of the graft itself. Paint the graft and all cut places with the melted paraffin, first trying the paraffin on your finger; if it hurts it is too hot. A small bunch of grass tied above the graft will do for shade in case of exposure to direct hot sun-rays.

It is at this point that the writer suggests italics:

Here we have a scion, the lower end of which is cut in the shape of a wedge, with clean cut edges of exposed cambium. On the tree, when the flap of bark is lifted, we have two clean cuts exposing the tree cambium. A perfect fit would mean that when the graft was inserted these two cambium layers would touch each other at all points, not tight enough to bruise the delicate structure of the inner bark but yet in actual touch. Our percentage of "catches" will be in proportion to our ability to approach perfection in the making of these fits.

We will presume that a perfect fit has been made, that the cambium layers are in close contact, air and outside moisture shut out and the beneficial light rays at work through the translucent paraffin.

Don't monkey with the nails, once they are in place. Pulling them out usually means doing the work over again. The tree growth will cover them up when the proper time comes.

When the grafts show signs of having caught, or begin to grow, the tree area should be gradually reduced, and supports placed to which to tie the new growth. This part of the work should be looked after closely to save the new growth from breaking off by its own weight, or from wind pressure. We think it a good plan to retard the rapidly growing sprouts, by pinching off the tips so that the grafts will have a chance to attach more firmly.

It is not expected that the method so briefly described shall in any way displace the older methods of budding and grafting; but it is hoped that it will provide a simple and economical way for changing our unprofitable trees into profitable ones and for working over the seedling trees into a variety which will prove more satisfactory. It is called "proximal slot graft."

The application of melted paraffin is of great value in practically all work of this kind, its function being to prevent evaporation, fill empty spaces, keep out disease and to permit of the light rays doing their part of the work of repairing a wound.

Small plants or small limbs may be grafted by the ordinary "cleft graft," or by cutting a slice from the side of the plant or limb and laying the wedge-shaped graft in the cut, care being taken to have at least one of the cambium layers or edges in close contact. These small grafts are to be wrapped with raffia or twine and painted with warm paraffine, and

later on, the wrapping made loose as the growth starts. We think nailing the better plan whenever it is possible for it to be done. It leaves nothing in the way of putting on a thorough coating of the paraffin.

This method applied to mangoes and avocados is a thing of beauty and a joy forever. Seedling trees transformed in a few months time into the loveliest most unpronounceable fancy varieties is surely worth while, not to say profitable.

Dr. Morris, in his nut tree grafting uses a salt solution to protect the delicate cell life of the scion during the time of exposure to outside influences. Such a solution, modified to meet our Florida needs would be of great value. Perhaps a more general interest in the matter will inspire some gifted plant expert into action, and we will get what we so earnestly crave.

Also, we hope soon to feel more certain as to the plant conditions which will most favor this class of work.

A paper of this kind does not afford much room for the discussion of details; and the few months we have been tinkering with the scheme suggest caution in the making of definite and positive statements. So far it looks good to us, particularly from the viewpoint of changing the drone trees into bank account boosters.

The writer hopes to see this interesting phase of horticulture thoroughly tried out, particularly as it may apply to the Florida conditions, and he furthermore assures you that you are quite welcome to what little we happen to know upon the subject.

PREPARATION OF OIL AND SOAP WILL HOLD WHITEFLY IN CHECK

There are many reasons why the citrus grower should take every opportunity to combat the whitefly. One of these reasons is that this insect sucks sap from the trees, foliage and fruit. Another is that it throws off a sweetish honey-dew which is fed upon by the jet-black fungus known as "sooty mold," and which in turn serves as an excellent hiding place for purple and long scales.

A number of natural enemies feed upon the whitefly, thus becoming friends of the citrus grower. These natural enemies should be utilized as much as possible. They are the twice-stabbed lady-beetle, the downy darkling beetle, the brown fungus and the red aschersonia fungus, and the microscera fungus, according to Prof. J. R. Watson, of the Florida Experiment Station.

In addition to being controlled by

these natural enemies, the whitefly may be kept in check by spraying during its larval stage, which usually begins two weeks after the adult stops flying. When the whitefly is flying freely it is laying eggs; then spraying is least effective.

Two or three sprayings a year usually is sufficient to control whitefly. The first should be made when the fruit is about an inch in diameter, usually in May. Spray again in September or October, ten days after the bulk of the adults disappear.

An excellent spray to use is a 1-percent. solution of oil emulsion, the government formula and directions for making such being: "Soap 2 pounds, paraffin oil 2 gallons, and water 1 gallon. Heat together to the boiling point, and then emulsify by forcing through a hand pump two or three times. Dilute this stock solution with 200 gallons of water to form a 1-percent. solution."

The foregoing formula requires soft water. Hard water must be softened before using. The following directions for doing this are recommended by W. W. Yother of the U. S. Department of Agriculture: "Add 1 pound of caustic soda to 1 quart of water. Stir one minute. Pour into 100 gallons of water. Dissolve 2 pounds of soap in 1 gallon of water and add this to the caustic soda solution. Then add the oil emulsion. In spraying use no agitator."

FLORIDA

(By GEORGE E. TACK, Tampa, Fla.)

This is the land that God has built,
Out of the coral and shell,
Out of the golden sand and silt,
And the rock and muck as well,
And under its vested bosom wide,
He veined the phosphate rare,
And laded the winds of the shoreward tide
With the tang of the ocean air.

For God looked down on the cities of men,
With their ceaseless clamor and din,
He saw, in the lordly palace and den,
The wanton pleasure and sin.
And He thought, "I will build an Eden fair,

With halls of the stately pine,
Where harps Aeolian thrill the air
And sunbeams warm like wine.

"The threnody of the mocking bird,
The gladsome call of the quail,
Shall ever in this land be heard,
In grove and woodland trail.
And lovely lakes shall mirror skies,
Where rainbow tints shall dwell,
And night, with her tranquil, starry eyes,
Shall of My glory tell."

Then His word went forth, and the ocean rolled
And tolled through ages old.
And tossed from its vasty caverns old
The treasures it long had held.
The winds and the tides, with eager hands,
Brought gifts from the isles afar,
And placed them on the rising sands,
And built up many a bar.

This is the Eden that God has built,
Out of the coral and sand;
Out of the myriad shells and silt,
And edged it with silvery strand.
And here, where the gulf winds chant and roar,
And lilies their fragrance shed,
And the tall palms beckon me evermore,
I'll dwell 'till my years have sped.

Florida's First Flower Festival

By N. A. Reasoner, Oneco

(Being a report of the First Annual State Flower Show, held in Orlando, Fla., April 17th and 18th; and the second Annual Florists' Convention at the same place on the 16th and 17th; by Mr. N. A. Reasoner, of Oneco, Fla., who is Director General of the first and Secretary-Treasurer of the second.—Ed.)

"A wonderful success!" was the universal exclamation of the visitors to Florida's first flower show which opened in Orlando on Tuesday afternoon, April 17th at 2:00 o'clock. Time and time again it was declared to be the most beautiful display ever staged in Orlando. Oh, there were imperfections, of course; we are not yet in Utopia; but these were more apparent to those in charge and to the judges perhaps than to the public at large. The total lack of exhibits in a large number of items and classes was a great disappointment to those who had worked for the success of the show, but other items were represented in profusion which partly made up for this in the eyes of the public.

Sixty-five floats were in line in the Floral Parade which formally opened the show, and not a single artificial flower on a single one of them! Judges S. S. Pennock, of Philadelphia,

Charles Baum, of Knoxville, and Carl Oelschig, of Savannah, had a hard time indeed in picking the winners as all of them were very creditable indeed. Perhaps the most interesting in the eyes of the public, altho it was not awarded a prize, was the float of the Orlando Ice Company, which consisted of a number of large blocks of ice in which a number of beautiful sprays of gladiolus and roses had been frozen, the transparent ice showing off the wonderful coloring to perfection. The Yowell-Drew Company, winners of the first prize in the Firms and Organizations class, used more than two thousand spikes of gladiolus in their entry; and these flowers were also used extensively in a number of the other floats, as were also the bougainvillea, single petunias, and oleander blossoms. "American Beauties" were present in all the floats, as might have been expected in Orlando—"You know what I mean, Mabel!" The floral parade, as well as the flower show, was "shot" by the Pathé News Service and will be shown all over the world in their weekly news features. This as well as the accounts in the various trade papers will result in much favorable publicity for the state and is worth much in dollars

and cents outside of the value in many other ways.

In the Flower Show proper more or less confusion reigned, due to the fact that not enough skilled help was available to properly arrange the exhibits before the time for the show to open; and also to the fact that the premiums were delayed in transit and did not arrive in time to be awarded at the show, but will have to be mailed to the exhibitors later. As was expected there were a number of items in classes A and D for which there were no entries (the gold medal which was offered for the best new rose wholly created in Florida, for example; in which it was the thought of the committee that the production of new roses could be stimulated in this way, but likely no exhibits could be made for several years yet), but the total lack of exhibits in class B and their comparative scarcity in class C was wholly unexpected and a very great disappointment. As was stated several times at the show, there are enough nice specimen plants right in Orlando to have more than filled all the available space if there had only been sufficient public interest to have coaxed them out. Another curious feature of the show was the ap-



This Wonderful Collection Attracted Much Attention

parent lack of interest the second day of the show. Over two thousand people crowded into the show the first few hours on the opening afternoon, and only a little over four hundred the entire second day, in spite of the fact that much additional material was staged, and the fact that the Horticultural Society was then in session and their members were expected to attend quite largely.

In spite of all these disappointments however, and even though a full ac-

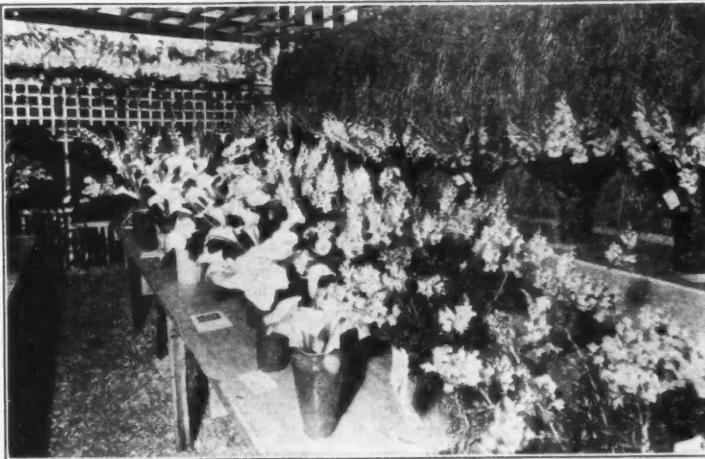
demic in 1888, and will be known hereafter as the Reasoner Memorial Cup, and awarded at succeeding shows until someone has won it three times, whereupon it will become their property. The Leo Niessen Company and the S. S. Pennock Company were the only entrants in the Best Exhibit of Cut Flowers in General, and both had wonderful displays, but unfortunately it was not possible to judge between them as some of the items had been mixed and it was impossible to tell

which they have recently completed or have under contract at present in or around Orlando. Mention should also be made of the very beautiful display by the Orlando Pottery, and the Flower Show certainly owes this concern a very deep debt of gratitude for the gracious privilege of using a large supply of their ornamental vases without charge when it was found impossible to secure the materials they had been counting on.

In the Florists' Convention, unfortunately a too heavy program had been attempted—at least too heavy considering that nearly all the members had an interest in the flower show too, and had to be there for at least a part of their time, and several of the papers had to be read by title only. A most interesting program and discussion, however, was presented, and a great deal of valuable information gotten in readable form. While the matter of bulb culture received the greatest attention, there were many other worth-while matters presented, among which was the need for a special course or regular department of the State University at Gainesville which should give instruction in horticultural subjects especially looking toward the training of young men of the state along florist lines. I believe the State Horticultural Society also made a recommendation along similar lines, and it is to be sincerely hoped that some action will be taken along these lines by the University authorities which will guarantee a supply of properly trained men in this profession, as this is a very important factor in the development of this industry which has commenced so rosily in this state.

Many important items of business were transacted, among which was the

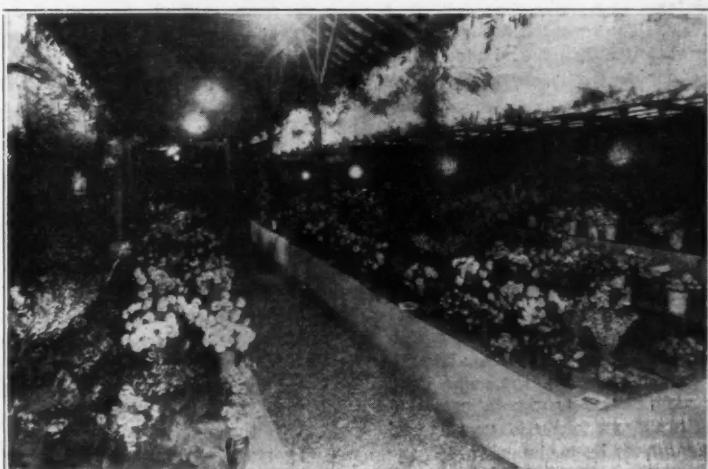
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An Artistic Corner at the Flower Festival

counting cannot be made for several days yet, it is felt that the show will finally show a small profit to the underwriters, and leave in addition a nucleus of material to aid in the production of the next show, for of course there will be another one—the only question is where, and who will manage it.

Among the notable points of the show worthy of special mention was the very extensive display of gladioli in a wide range of colors and varieties, and it was especially worthy of note that in two cases Florida-grown flowers on Florida-grown bulbs surpassed everything else exhibited which was grown from Northern bulbs. Calla lilies were also shown extensively, as were roses, too, of course, and then a wide variety of other flowers in smaller variety. The display of decorative palms by the Royal Palm Nurseries was also very interesting and extensive and was awarded the gold medal in this class. The grand prize, however, computed on the basis of points, was won by the Knull Floral Company, of Tampa, with a good, well-rounded display in all departments. This prize was offered by the Royal Palm Nurseries in memory of the founder, Mr. P. W. Reasoner, who died in the yellow fever epi-



One of the Beautifully Arranged Displays

Southern Grape Culture

Statement by Florida Grape Growers' Association

The development of the grape growing industry of Florida, has taken place largely during the past decade, although grapes have been grown in the state for generations, including Muscadines, native grapes, some varieties of bunch grapes on a small scale, and, occasionally, here and there, a few vines of really adapted bunch grapes of the hybrid varieties. However, it is less than ten years since the development of the grape growing industry upon a commercial scale began and the industry is even now in its infancy, compared with the wonderful possibilities.

There are successful vineyards of adapted bunch grapes now in nearly every part of the state and upwards of a hundred acreages and probably quadruple that number of successful commercial vineyards. The coming season will witness the planting of scores of acreages of grapes, amounting in the aggregate to probably hundreds of acres. It is not without the bounds of reason to predict that within five years thousands of acres of grapes will be planted in this state every year.

Those responsible for the healthful development of the grape industry in this state have made proper and accurate investigations for the culture and selection of soils, the manner of care and time of planting, and especially in the selection of the adapted varieties of grapes for the successful vineyards in this section of the United States. The present success of the industry shows this to be the case after the invariable failure of all others in this line, embracing thousands of trials. The repeated failures of all other varieties than the adapted bunch grapes makes it unnecessary to speak of them further.

The difficulties with which the north had to contend in successfully introducing bunch grapes in that section, which was overcome by grape culturists generations ago, have likewise been overcome by the introduction of successful adapted varieties in the south, by the adoption of similar methods. There are no successful vineyards in Florida of northern, California or European grapes, although hundreds of acres of the same have been planted and proven failures and even in the past several years more acreages have been planted which are bound to likewise prove unsuccessful. Even now there are many people in

various parts of the south still experimenting with northern, California and European grapes, in spite of hundreds, yes, in fact, thousands of failures in the past fifty years. It is neither wise nor profitable to expend time or money on such foolish experiments in view of the valuable knowledge of those who have made a thorough study of conditions of the past and of the present and have made the practical experiments demonstrating the correctness of the position taken in this article.

Methods of Trellising

California methods of planting, trellising and care of grapes are not suitable for conditions in Florida, nor are Texas, Northern or European methods suitable for conditions in this state. All the various methods of trellising have been tried out with the result that the two wire and post Kniffin system has been demonstrated to possess the most merits for Florida conditions. No support is needed during the first year for the vines. Posts should be from 20 to 25 feet apart, the first wire two feet from the ground and the second on the top of the post one and a half feet above the first wire, smooth wire No. 10 to 12 being preferable. Some prefer putting each of the wires six inches higher.

Time of Ripening

In a general way it may be said that the earliest varieties begin ripening the latter part of May in some parts of the state, others ripen early in June and different varieties ripen at various times till well up in August. Usually the main fruiting season is from the middle to the latter part of June, although this may vary from one to two weeks, according to the season. During the season which closed in July, some grapes in the northern part of the state were on the markets as early as the latter part of May and grapes ripened still earlier in the southern part of the state.

Soils and Preparation

There have been successful yields of adapted bunch grapes from the lightest of rolling sandy soil to the heaviest of sand mulch and muck. Some varieties seem to do best on high sandy land and others prefer the lower heavier soils and some varieties do well on nearly all kinds of soils. Grapes will grow on the poorest of land and do splendidly on the citrus land in all parts of the state. In preparing for the planting of grapes it is well to start several weeks before planting time and plow the land fully a foot deep, setting the soil on edge

and not turning completely over, the object being to thoroughly mix the top and bottom soil. Then the soil should be well cultivated several times.

It is possible to plow the land, cultivate same, lay off the rows and at once plant the grapes with good results, but it is better to take more time as a rule. Where one does not have the time and wishes to develop a vineyard without waiting for another season, it can be cleared, plowed, cultivated and planted to grapes, but in this case it is essential to thoroughly cultivate at least three times monthly during February to October, inclusive. After the soil is thoroughly cultivated the rows should be carefully laid off about eight to ten feet apart, the latter distance preferable, and the plants put in eight to twelve feet apart, according to the variety of grape.

Planting

The holes should be 12 to 15 inches across and 15 to 18 inches deep, the top soil should first be placed in the bottom of the hole and used to cover well and firmly the roots of the plant, above which a little fertilizer rich in nitrogen or plenty of heavy muck, if nothing else is available and other soil on top of this well firmed and last a layer of loose soil on the top not firmed. In planting put the plant well down in the hole, so that no more than two buds of a properly pruned plant will appear above the surface when planted. Most people do not plant their grapes deep enough. Sometimes people will think they have planted their grapes properly and there will be roots sticking above the ground six or eight inches. The best time to plant is December and January of each year.

Cultivation and Fertilizer

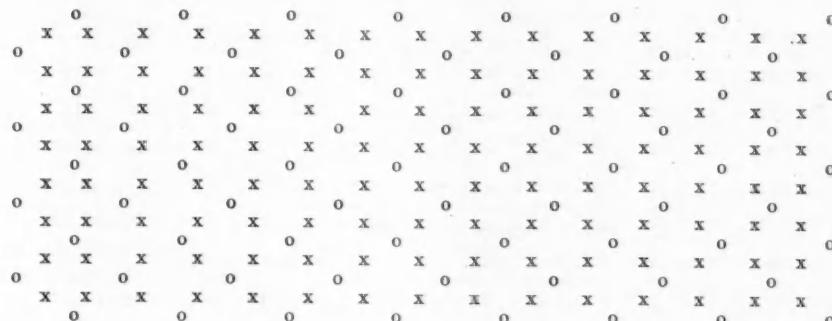
Clean cultivation should be practiced with bunch grapes from February 1 to November 1. When the ground is in good condition an Acme cultivator works very nicely and should be used about every ten days, whether there are weeds in the vineyard or not. A hoe should be used to keep the weeds out of rows and from close around the plant. During the first few months deep cultivation is best, up to about the first of July and shallow cultivation the balance of the season and during the entire season thereafter. Several applications of bone meal or some other fertilizer rich in nitrogen, some well decayed fertilizer, should be used after the plants are well started. Application should be made at the rate of about a pound per

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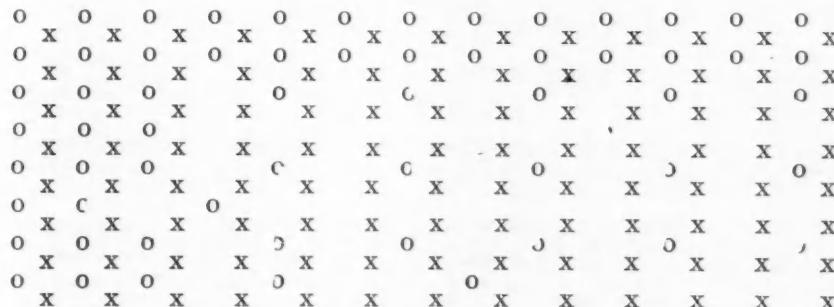
In Summertime Prepare for Cold

LOCATION OF HEATERS FOR FROST PROTECTION
Heaters—o Trees—x

NORTH



LOCATION OF HEATERS DURING WINDSTORM
NORTH



The month of May may not be a good time to interest grove owners in the subject of frost protection through the medium of grove heaters. Danger of damage by frost is a long way off, and procrastination is the besetting sin of many growers as well as of those in other walks of life. The groves are safe from frost injury until next January, or December at the earliest, so, why should the grove owner worry?

Yet The Citrus Industry is so firmly convinced of the wisdom, yes, the necessity of frost protection for Florida groves, that it is prepared to risk ridicule by urging this necessity even during the height of the summer season, on the principle that the proper time to prepare for war is during the piping times of peace.

It has been a matter of less than ninety days since the growers of Florida were threatened with a disastrous freeze. Many young groves suffered injury as a matter of fact, though fortunately not serious; and many

more would have suffered but for the forethought and wisdom of their owners in providing frost protection. Thinking back to that period and the worry it occasioned, the wise grove owner will at least consider what provision he will make to meet a similar or worse condition in the future.

Past experience has demonstrated that no section of the United States in which citrus may be produced, is free from danger of injury by frost. This is a condition which the wise grower must face, and be prepared to meet if he would eliminate the danger of disastrous reverses when the unusual and unexpected "freeze" shall come.

There are heaters of many makes and many types. Each grove owner must be his own judge as to the particular make or the particular type best adapted to his individual needs, but he will find no better time for making these investigations and determining which will best meet his requirements than during the period

before it becomes necessary to actually put his heaters into use.

That grove heaters have saved millions of dollars to the grove owners of California, in many cases saving the groves from actual total loss, is well known. Last winter, in the Rio Grande valley of Texas, many young groves were saved from ruin by the use of heaters, and in Florida the efficiency of heaters has been abundantly demonstrated.

On February 18 of the present year, Gentile Bros. Co., of Orlando, fired 1,080 heaters in one of their 80-acre groves, as the temperature had dropped to 29 degrees and the grove was in full bloom. It was estimated that the coming crop in that grove would run to about 20,000 boxes—a crop well worth saving. With less than 15 heaters per acre, an inadequate number, the temperature was raised from 29 to 40 degrees and maintained at the latter temperature until 7 a. m., and not a bloom was lost in the grove.

On the same night, on the grove o-

THE CITRUS INDUSTRY

G. VanBurkum, at Frostproof, 300 heaters were lighted on a grove of 10 acres, with an attendant increase of ten degrees in temperature in his own grove, 8 degrees on the ten-acre grove south of him, and 6 degrees on the second ten-acre grove, also to the south.

On January 10, 1923, on the Deerfield Groves near Rockledge, 34 heaters on a little more than one acre were lighted by one man in 12 minutes and raised the temperature ten degrees in thirty minutes.

An increase of ten degrees in temperature would have saved any grove in citrus Florida during the most severe cold this section has known. In the past that ten degrees has meant the difference between prosperity and

disaster for many growers. In the future that ten degrees may mean the same difference on a larger scale. The wise grower, we believe, is the one who is prepared to protect his grove by providing the heat essential to its preservation during the most severe colds.

For the benefit of those growers who may be considering the protection of their groves, we subjoin two plats suggesting the arrangement of heaters under varying conditions. The first plat shows the proper arrangement of heaters when the weather is cold but still; the second the proper arrangement when the wind is blowing strongly from the north.

The family that finds it inconven-

ient to get ice for its refrigerator, may build an iceless one. By its use a temperature of 65 or 70 degrees may be obtained in Florida in mid-summer. It will prove to be an inexpensive household convenience. Directions for making it may be obtained from your county or home demonstration agent.

A little Bordeaux paste applied to the freshly cut stems of watermelons will prevent most of the losses due to stem-end rot in transit. Ask your county agent about it.

A good feed for a dairy cow is nutritious, palatable, succulent and easily digestible.

Spray Schedule for Citrus

I. SPRAY SCHEDULE FOR GRAPEFRUIT (1)

By W. W. Yother, Entomologist, and J. R. Winston, Pathologist, U. S. Dept. of Agriculture.

Appli-cation.	Time	Material	Enemy	Remarks
A.	About March 15-25 (3)	3-3-50 Bordeaux plus ½% oil as emulsion.	Scab, early melanose, scale crawlers, white fly.	Only partially effective against severe scab outbreaks. (2) This is a good time to spray if grower can make but one application for scab control.
or A.	Do.	Lime sulphur Sol. 2½ to 3 gal.—100.	Scab, red spiders, rust mites & scale crawlers.	Has but little effect against scab but is desirable for its effect against insect pests.
B.	April 5-15	Lime sulphur Sol. 1½ to 2 gal.—100.	Rust mites, sharkskin, tearstain & scale crawlers.	Probably not necessary if lime sulphur is used in A.
C.	April 25-May 5 (4)	3-3-50 Bordeaux plus 1% oil as emulsion.	Melanose, white fly, & scale insects.	Usually quite effective against melanose. (5)
D.	June 25-July 5	1% oil as emulsion plus dry soda sulphur 2½ lbs. —100 gals.	Rust mites, scales. Scale insects, white fly.	Very important if copper sprays have been applied during the season.
E.	Sept. 1-Feb. 1	Do.	sooty mold, rust mites.	Not always necessary. (6)

II. SPRAY SCHEDULE FOR ORANGE. (1)

By W. W. Yother, Entomologist, and J. R. Winston, Pathologist, U. S. Dept. of Agriculture.

Appli-cation.	Time	Material	Enemy	Remarks
A.	April 20-May 5	3-3-50 Bordeaux plus 1% oil as emulsion.	Melanose, white fly & scale insects.	Usually quite effective against melanose. (5) Probably not necessary on rather young trees where these enemies do not occur.
B.	June 1-15	Lime sulphur Sol. 1½ to 2 gal.—100.	Rust mites, sharkskin & scale crawlers.	The critical rust mite application.
C.	June 25-July 5	Oil 1% as emulsion.	Scale insects.	Very important if A. was applied.
D.	Sept. 1-Feb. 1	Oil 1% as emulsion plus dry soda sulphur 2½ lbs. —100.	Scale insects, white fly, sooty mold & rust mites.	Not always necessary. (6)

(1) This spray schedule should be expected to give reasonably satisfactory results under Florida conditions in years when the diseases and insect pests do not occur in unusual abundance.

(2) For more complete information on scab control where the disease occurs in quantity see U. S. Department Agriculture Bulletin No. 1118, "Citrus Scab; Its Cause and Control," or Department Circular No. 215, "Commercial Control of Citrus Scab."

(3) In the last of the bloom, when about ¼ of the petals have fallen.

(4) At least 10 days should elapse between lime sulphur and Bordeaux Oil applications to avoid danger of injury.

(5) For more information on melanose control see U. S. Dept. Agric. Circular No. 259, "Commercial Control of Citrus Melanose."

(6) For detailed information on the control of Florida citrus insects see Farmers' Bulletin No. 833, "Spraying for the Control of Insects and Mites Attacking Citrus Trees in Florida."

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We enjoin you to patronize your local stores and assist in building your local town and community and a Greater FLORIDA.

You will find our goods in your local stores and although we have lost that personal touch that existed when you came to our store and we served you personally, we are still serving you with the best of merchandise through your local dealer.

Knight & Wall Co.,

Wholesale Hardware

Tampa,

Florida

SUMMER CONTROL**FOR PECAN SCAB**

Pecan scab, a fungous disease which affects the leaves, twigs and nuts of pecans, can be controlled by spraying with Bordeaux mixture, according to Dr. O. F. Burger, of the Florida Experiment Station.

The disease may be identified by a dark green, smoky, superficial growth which is usually confined to rounded spots. On the leaves the spots are slightly raised and vary in size from very small to one-fourth of an inch in diameter. On the nuts the first appearance of the scab is similar to that on the leaves, except that the affected areas appear sunken in the green tissue.

Spraying with Bordeaux mixture for this disease is entirely a preventive measure, and does not act as a cure after the disease is once established. A definite spraying schedule will depend on the amount of rainfall in a given locality. If the season is very wet the interval between sprayings should be shortened to two weeks, whereas, if the season is moderately dry, this interval may be lengthened to as much as three or four weeks.

Bordeaux mixture, 4-4-50 formula, is recommended and it is advisable to use in addition 1 pound of resin fish-oil soap to each 50 gallons of the preparation to increase its spreading and sticking qualities.

It is very important that this spraying for scab be kept up thruout the months of May, June and July; and, if conditions are favorable for the

THE CITRUS INDUSTRY

development of the fungus, one spraying should be given in August. If the orchard does become infested, all the fallen leaves and husks should be removed the following winter and a clean-up spray of Bordeaux given before the growth starts in spring.

COLLEGE BIRD LAYS**28 EGGS IN 28 DAYS**

"Twenty-eight eggs laid in twenty-eight days and with no idea of stopping" is the record of a one-year-old Buff Wyandotte hen doing business with the College of Agriculture, University of Florida. She started laying on March 29 and this record includes April 25.

"While this may not be a record for the state and while we are not particularly interested in breaking and establishing records, the work of this pullet is significant and worthy of much attention," declared N. W. Sanborn, poultry specialist in charge of the college poultry plant, when interviewed. "I consider her a most promising bird, and already we are taking steps to build up a flock with her blood as the basis. Her eggs are being incubated right now for that purpose."

Dr. Sanborn explained that this hen is receiving the same treatment as other hens of the flock, running and feeding with them. Her feed at present consists of a dry mash and scratch mixture, plus whole oats spaded into the ground. The sprouted and young oats furnish green feed which is so necessary for growing or laying chickens.

FLORIDA BANKERS SEND CLUB BOYS TO COLLEGE

The bankers of Florida every year give three scholarships of \$100 each to that many boys as rewards for work done as members of the agricultural clubs of the state. The scholarships are to the College of Agriculture, University of Florida, and are awarded upon competitive examination conducted by State Club Agent R. W. Blacklock. One of the three goes to a West Florida boy, one to a Central Florida boy and one to a South Florida boy.

During the meeting of the State Bankers' Association in St. Petersburg, April 13-14, the bankers voted to give these three scholarships again this year. Provision is made that the winners must attend the state's college of agriculture as regular college students. However, that does not mean that a boy must be ready to enter college in order to win. If he is not ready to enter, the money is placed in a bank and draws interest till the boy is ready.

Mr. Blacklock says that none of the club boys who won scholarships last year have failed in their college work.

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And doing things over and over;
Courage and will, perseverance and
skill—

Are the four leaves of Luck's clover.
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WHAT EVERY CITRUS GROWER SHOULD KNOW

Bayard F. Floyd has written at length on conditions in the citrus grove in late spring and in summer, giving latest methods of management covering cultivation, fertilization and control of insects and diseases.

We have a copy for every citrus grower in the State. If you have not received yours, let us know at once that we may mail it to you.

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SCAB LOSS TO CITRUS MAY BE ELIMINATED

Scab, which annually causes a loss of many thousands of dollars to citrus growers, may be completely controlled, according to specialists of the State Plant Board of Florida. In a statement by officials of this board bordeaux mixture is said to be the material which will do this. That statement reads as follows:

"With the coming of cooler weather the amount of citrus scab of young seedlings is greatly increased. Nurserymen and growers who are raising citrus seedlings are urged to be on the alert.

"This disease may be completely controlled by bordeaux mixture, if it is properly made and applied. It is important that the bordeaux be applied before the seedlings become affected, for it is a preventive, not a cure.

Experienced nurserymen consider an application of bordeaux equivalent to an application of fertilizer. If bordeaux is to be used in a grove, oil emulsion should be added so that the combination will contain 1 percent of oil. The efficiency of either the oil nor bordeaux is reduced by the pres-

THE CITRUS INDUSTRY

ence of the other.

"Home made bordeaux is recommended rather than the commercial. Some of the commercial varieties are of poor quality. Home made costs but three-fifths of a cent a gallon. It can be easily and quickly made, if the simple instructions are followed. These instructions may be had upon request to 'Nursery Inspector, State Plant Board, Gainesville, Florida.'

BEGGARWEED A VALUABLE "WEED"

The beggarweed is one of the best soil improvers known to the farming world. Called a weed, it is in the sense that, once a foothold is gained, it grows and reseeds itself from year to year.

But it is not a weed in the sense of being an enemy to good agriculture. It helps the farmer too much to be classed as an enemy. It improves his land, and it furnishes his horses and cattle and swine with excellent grazing and forage. It springs up—if it has been allowed to establish itself on the land—without the care or worry of the farmer. In order to let his regular crops pass the growing stage, he may keep the beggarweed sub-

dued until that has been done; then is time enough, ordinarily, for this "weed" to make a good crop.

Beggarweed should grow upon every farm. If you have not this valuable plant upon your land, see that it gets there. Beg, borrow, buy or "steal" seed from your neighbor or from another section. Remember that it is a legume and that it, therefore, takes nitrogen from the air and stores it for the use of itself and other crops. And remember that your soil needs nitrogen more than it does any other plant food element.

The seed should be gathered in the fall months. Store thru the winter and sow in the spring, or about time you are laying-by your regular crops, if you plan to grow the beggarweed on the same land with these other crops.

Say the state bankers: In our opinion no safer banking has been done than loaning to members of boys' and girls' clubs on the recommendation of the county agents under whose supervision the money loaned was expended. We have heard of no bank regretting having materially assisted in the development of this kind of agriculture.

Seaboard Air Line

Announce Summer Tourist Rates

California : National Parks : Eastern Resorts : Carolinas

The Blue Ridge Mountains of Western North Carolina

IS A WONDERFUL VACATION SPOT

Cheap Summer Tourist rates are offered to ASHEVILLE, WAYNESVILLE, BLACK MOUNTAIN, HENDERSONVILLE, BREVARD, LAKE TOXOWAY and many other interesting points via the route of the

"LAND OF THE SKY SPECIAL"

Leaves St. Petersburg daily.....	10:30 A. M.
Leaves TAMPA daily.....	1:00 P. M.
Leaves JACKSONVILLE daily.....	8:25 P. M.

Through Sleepers and Famous Seaboard Dining Car Service

LET US PLAN ITINERARY FOR YOUR SUMMER TRIP. Call on nearest TICKET AGENT, who will be glad of the opportunity to serve you, or write

R. H. ROLFE, District Passenger Agent, HILLSBORO HOTEL, TAMPA, FLA.

Seaboard Air Line Railway

SUNOCO Spraying Oil

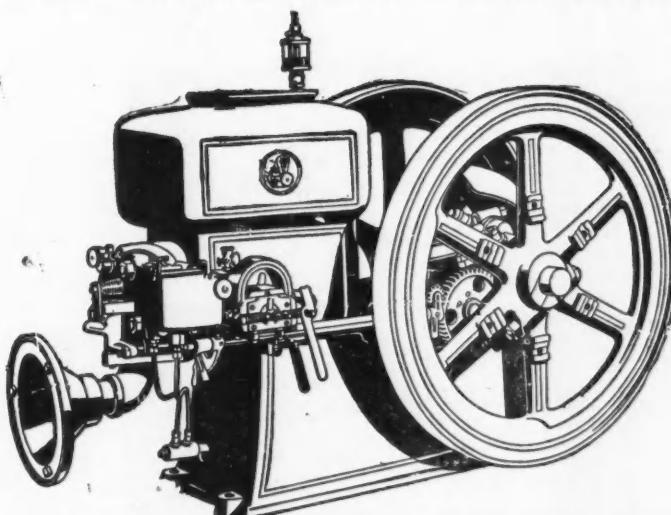
THE OIL YOU HAVE ALWAYS WANTED

It GETS the scale—It mixes easily with water
It does not break down and give off bad odors
It is non-poisonous to man or animal
It will carry lime, sulphur, nitrates, nicotine or Bordeaux
As a spreader it has no equal
U. S. Department of Agriculture says we lose a billion and a half dollars
per year, due to destructive insects. HOW MUCH ARE YOU LOSING?
Write for full information.

Efficient and Economical

Peninsular State Oil Co., Jacksonville, Fla., Agents.

Gulf Fertilizer Company, Tampa, Fla., Distributors.



Prices
Reduced

on

**HERCULES
ENGINES**

Most dependable of
all
Farm Engines

NEW PRICES JUST ANNOUNCED BY THE FACTORY enable us to sell HERCULES at prices that will satisfy you. Your neighbor who has one will tell you it is always reliable. THE 8 MILLION DOLLAR HERCULES CORPORATION stands back of ITS 5-YEAR GUARANTEE.
GET OUR PRICES ON THE FLORIDA SPRINKLER BEFORE YOU IRRIGATE

**COATES PLUMBING SUPPLY CO.
TAMPA, FLORIDA**

SPRAYING REDUCES LOSS OF CITRUS FROM ANTHRACNOSE

Very much of the loss of citrus fruit caused by anthracnose could be prevented by promptly and thoroly spraying the fruit. This disease, being caused by the same fungus which causes withertip, may be expected to appear in groves where withertip is prevalent.

The disease is identified by dark colored sunken patches in the skin of the fruit. The darkened spots may be regular or irregular in outline. The lesions may occur as a number of small spots no larger than a pin head or they may involve a large portion of the fruit. Frequently there are jelly-like exudations around the spots.

According to Dr. O. F. Burger of the Florida Experiment Station the first sign of the disease is dropping fruit. This is particularly true of grapefruit and to a lesser degree of tangerines and round oranges. The disease rarely appears on the fruit before it colors except in some cases. It may attack tangerines before the fruit colors. Fruit on weak or poorly nourished trees is especially susceptible.

There is not so much danger of anthracnose if the wood has been pruned to eliminate withertip. If this pruning has been neglected, the fruit should be watched closely. It is suggested that weekly inspections be made in any event to be sure that the disease does not develop.

Ammoniacal solution of copper carbonate is recommended for the control of anthracnose. The spraying must be prompt and thoroly if it is to give protection. Every part of the fruit must be moistened, but not drenched. To do other than efficient spraying is useless. Keep the solution from the leaves and branches as much as possible. Repeat it ten days or two weeks later. Results will show in about four weeks.

SEBRING HAS RECORD YEAR

Citrus shipments by the Sebring Citrus Growers' Association have thus far totaled 300 cars, or 115,000 boxes, exceeding all previous records. Prices received have been most satisfactory, says Manager W. L. Crews. About 75 cars of high-grade fruit remains to be shipped by the association.

Citrus fruit can be colored without injury to its keeping and eating qualities. In fact, these qualities can be improved thereby.—W. R. Barger, at State Hort. Soc. meeting.

Nothing can take its place

For many years Nitrate of Soda has been used by large and successful growers of California fruits and vegetables. They know that it furnishes immediately available Nitrogen when and where it is needed, and that where properly used and applied it has yielded uniformly large and profitable returns.

Nitrate of Soda

carries 16% Nitrogen, equivalent to 18% ammonia immediately available.

It is readily soluble but is not deliquescent, and may be kept indefinitely in the bags in which it is shipped without change or deterioration.

The notion that black alkali comes from the use of Nitrate of Soda is pure fancy and cannot occur when acid phosphate is used with the nitrate in suitable quantity for plant feeding.

No failures

come from the use of Nitrate of Soda. My Bulletin on The Rational Use of Nitrate of Soda and others treating fully of California soils and fertilizing conditions will be sent free upon request.

Dr. William S. Myers, Director
Chilean Nitrate Committee
25 Madison Avenue, New York

Something About The Polk Company

The founder of the Polk interests, J. T. Polk, began canning fifty years ago next August, the pioneer of the central west.

Some of the methods he developed are standard practice today.

The standard he established for quality goods, for fair dealing, for progressive altruism, is indelibly stamped on an industry he saw grow from "rule of thumb" to scientific control.

THE POLK COMPANY was formed by his successors to conserve Florida products.

In 1921, it brought into being in the state of Florida, the canning of grapefruit. It is owned by two men, Ralph Polk and Samuel Dungan (brothers-in-law and owners of the Polk Sanitary Milk Company, of Indianapolis, and other interests).

It will use by the end of this season approximately 150,000 boxes of grapefruit, at least 40 per cent of which could not have been shipped fresh, and at least 95 per cent of which would have returned the grower less than he received from THE POLK COMPANY, and much of it, had it been shipped, would have "come back in red."

It is purely a manufacturing institution, grapefruit being its "raw material," for which it PAYS CASH at a figure known to the grower when delivery is made.

While THE POLK COMPANY will expand conservatively next year, it does not yet feel warranted in proclaiming to the public that the experimental stages have been passed. Many things can happen many months after canning to cause losses. Only those who are deficient in canning experience are so foolish as to ignore the hazard of canning a new product given to "pinholing" and development of "hydrogen springers" after standing a few months.

MR. GROWER, if this industry ultimately succeeds, is it worth your support NOW?

The Polk Company

Miami, Fla.

Haines City, Fla.

Vero, Fla.



Fertilizer

is an investment, not an expense. The more you can invest the better, so long as each additional dollar invested returns a reasonable profit.

We invite you to share in the same success we have had during the past ten years, in the manufacture of 100 per cent Quality fertilizer, by using either Osceola or Early Bird brand.

We build on Quality
Quality gives Results
Results give Satisfaction

Osceola Fertilizer Company

1003-4-5-6-7 Graham Building

Jacksonville, Florida

Twenty-eight

WHY THE VELVET BEAN SHOULD BE PLANTED ON ALL FLORIDA FARMS

No better soil-improving plant than the velvet bean is known for average Florida conditions.

It gathers nitrogen from the air and stores it in its roots, leaves, fruit and vines, doing equally as well as any other leguminous plant known to the agricultural world.

It furnishes a heavy growth of vines and leaves which, when plowed under, give life to the soil and thereby stimulate plant growth in a remarkable way.

This heavy growth of vines and leaves shade the ground, thus supplying a need felt by most farmers.

It supplies the farmer with the best fertilizer element known—nitrogen—and at rates no fertilizer manufacturer can approach.

Its roots grow deeply, loosening the soil so the roots of corn and other crops may the better reach down to water and plant food.

The velvet bean is recognized as one of the best feeds for fattening cattle. The leaves and vines, as well as the pods, are highly palatable and may be pastured thru the fall and winter, after they have fully matured or been killed by frost.

But cattle have no option on this plant for feeding purposes. Sheep, goats, hogs and horses are fond of the vines and leaves, and hogs fatten well on the pods.

As a dairy feed, the velvet bean meal takes high rank.

This plant has few enemies and is grown easily and cheaply.

No Florida farmer should hesitate to plant velvet beans along with his corn crop, because the value of the bean crop is worth far more than the little trouble the farmer is put to in gathering the corn in the bean vines.

Forty-eight Rhode Island Red hens the property of Mrs. L. A. Henry, of Lee county, laid an average of 22.68 eggs in February, or in 28 days. That gives the flock of Mrs. Henry first place in the farm-flock egg-laying contest being conducted by the home demonstration branch of the Agricultural Extension Division. Lewis Hall, of Palm Beach county, who has been leading, is now in second place.

There is no such thing as luck in cooking. Good cooking always means accurate measurements, careful manipulation and thoughtfulness.

In answering advertisements, say you saw it in *The Citrus Industry*.

THE CITRUS INDUSTRY

FLORIDA'S FIRST FLOWER FESTIVAL

Continued from page 17
appointment of a special committee consisting of N. A. Reasoner as chairman, and W. H. Schultz, Jr., of Auburndale, and J. M. Caruthers, of Orlando, to meet with similar committees from the other sponsoring organizations, to consider the future development of the State Flower Show. This committee will likely recommend that in the future this show be staged under the direct auspices of the State Florists's Association, provision however being still retained for ample participation by both the amateur class of growers and the gardening profession.

Dues in the Association were raised to \$2 annually and \$25 for life membership, and after considerable discussion a decision was reached to separate the Florist meetings hereafter entirely from both the State Flower Show and from the Horticultural Society meeting and hold them in the fall of the year, probably in November, which will be more satisfactory in many ways, as it will also allow more time to be given to trade displays and discussions without competition from other attractions in which the florists are also interested. Being the dull season of the year it will also be easier for most of the florists to get away than at present, which is just at the height of the busy season.

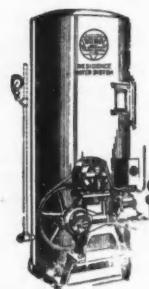
Tampa was chosen as the next meeting place, the exact time being left to the discretion of the Board of Directors.

Summarizing the whole show in a few words, it can truly be declared an amazing success—interesting, instructive, and decidedly worth while in valuable publicity for the state—and probably a financial success also. Hats off to Mr. Fletcher and the people of Orlando who made it a success!

PREVENTION OF DECAY

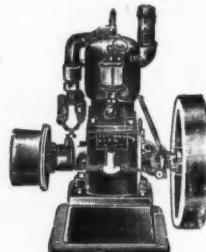
Continued from page 12
will succeed in reducing decay and in maintaining the keeping reputation of Florida fruit. The question of pre-cooling should also be given more consideration in immediate connection with decay. It is so well known, both by the trade and consuming public, that Florida citrus fruits contain more juice than others, that we should spare no effort to deliver them in such condition that they will keep. Reduction of decay to a minimum will assist materially in placing our fruits in the markets so well conditioned that dealers and consumers will insist on a continuous supply, which will make an over-production of Florida fruit an impossibility.

We specialize in water and light plants and irrigation systems. We make this our business and devote our entire time to it, therefore we believe we are especially equipped to render most efficient service in these lines.



Automatic water systems eliminating overhead tanks. Running water to all parts of your house and out-buildings.

We make complete installations of Water Systems, Electric Light plants and Irrigation Systems.



Lighting plant engines 1-2 to 20 h. p.

We carry a complete stock of lighting plant Engines and water systems in stock and can make immediate deliveries on all sizes.

Southern Water Supply Co.,

L. A. GABLE, Mgr.

807 Tampa St., Tampa

Distributors of

Cushman Engines

Cushman Light Plants

Duro Water Systems

Deming Pumping Systems



CITRUS TREES

of Finest Quality and Bud Selection

This old established nursery has always propagated citrus trees of FINEST QUALITY, paying especial attention to bud selection and root system.

PLANT TREES FOR A PROFIT

If you want to plant citrus trees for a profit it will pay you to communicate with us.

GROWERS ATTEST QUALITY OF WARTMANN TREES

In all sections of Florida there are growers who attest to the superior quality of Wartmann trees.

THE WANURCO TANGERINE

A kid glove variety that surpasses all others in FLAVOR, JUICE CONTENT and SIZE.

The WANURCO ripens earlier, carries juice longer and is larger and better looking than any Tangerine now on the market.

WRITE FOR PRICE LIST AND COMPLETE INFORMATION ON THE FAMOUS WANURCO TANGERINE

The illustration shows a two-year-old WANURCO tree

WARTMANN NURSERY COMPANY
Ocala, Florida

Description of Tirrell Big Four Sprayer

5 H. P. New Way air cooled engine.

200 gal. cypress tank.

Large air and solution pumps.

Two 50 ft. lines special hose.

Two spray canes.

6x34 front and 6x42 rear steel wheels.

Steel truck.

Weight only 1300 pounds.

The sprayer that is proving to the Florida growers that satisfactory results can be obtained WITHOUT HIGH PRESSURE. It eliminates pump repairs; it eliminates shut-downs due to faulty high pressure; it puts a mist over the trees equal to a high pressure sprayer; it uses only ONE-HALF the amount of spray material that a high pressure sprayer does; it cuts the cost of spraying ONE-HALF. It is doing all of this for other Florida growers, and it will do the same for YOU.

Write for catalogue and full data on this excellent sprayer.
As it is now time to spray with Lime Sulphur and Nicotine Sulphate, let us quote you on your requirements.

Complete stocks of Oil Emulsion, Bordo Oil, Soluble Sulphur Compound, Lime Sulphur Solution, Nicotine Sulphate, Niagara Dusters and Dusting materials kept in stock. Your business solicited.

Citrus Growers Supply Co.

303 Krause Blvd.,

Tampa, Florida

SOUTHERN GRAPE CULTURE

Continued from page 18

plant, with several more applications during the growing season. Shallow cultivation is up to about four inches deep and deep cultivation is up to six or eight inches deep. Cultivation is not essential during the dormant period. If the best results are desired the foregoing methods are essential.

Spraying

Most of the grapes adapted to Florida are good all over the South. As compared with many of the other leading fruits of the South, grapevines need much less spraying and cost much less per acre to spray. The very few diseases and insects which attack the adapted varieties in this section are quite easily and readily controlled by the common spray of Bordeaux mixture, at the rate of about 5-5-50. While plants are very little attacked by insects they can easily be controlled by the application of about two pounds of arsenate of lead to 50 pounds of Bordeaux mixture. Under ordinary conditions about three applications per season are sufficient. One of the best preventives is to spray immediately after pruning in January, before the vines begin to leaf, the vines, posts and also the soil of the vineyard, with a spray of about six pounds of bluestone to about 50 gallons of water. This will destroy more germs of disease which attack grapes than can be destroyed in any other way. It is not expensive to spray well, as about five acres of grapes can be sprayed for the entire season for about what one acre of fruit trees can be sprayed.

Pruning

Owing to the peculiar growing conditions prevailing here, it is essential to prune grapes in this part of the country more severely than in any other section of the United States. All grapes do better when very heavily pruned. It is often best to cut away 75 to 80 per cent of the vine and sometimes it is wise to take off as much as 90 per cent to secure the best results in fruiting. The first year it is wise to keep the vine pruned to a single stem by pinching the new sprouts off every couple of weeks up to about the first of July, the object being to develop a strong main base stem for the plant. The renewal system of pruning is advised.

Life of Grapes

Some of the adapted varieties of bunch grapes doing well in Florida have been producing grapes successfully for more than a generation with no signs of deterioration. This is on the Gulf Coast and some of them seem to do better in Florida than anywhere else, so there appears to be no reason

THE CITRUS INDUSTRY

why they should not be everlasting in this state with proper care.

Marketing

This is a matter of the utmost importance in the development of the grape-growing industry of Florida, but is simplified when it is borne in mind that Florida grown grapes have practically no competition in the United States. During the past decade the supply has never approached the demand and though the acreage of grapes has increased rapidly year after year the demand has increased correspondingly, so that Florida growers of grapes have uniformly received higher prices for their fruit than growers in any other part of the country. This was true also during the past season. Florida growers of grapes have the advantage of being closest to the great eastern market centers as well as the middle west. It is essential that it be generally known that Florida produces grapes on a commercial scale and there will never be any trouble about finding a market for all the grapes that can be produced in the state. Marketing of grapes is one of the main reasons for the formation of the association and methods of marketing must be devised and worked out.

BRADENTOWN WILL HAVE NEW CANNERY

Plans are under way at Bradenton for the construction of a grapefruit cannery factory, to be in operation by the next fruit shipping season, according to announcement by H. G. Gumprecht, manager of the Manatee County Citrus Sub-Exchange. Details have not been completed, but it is fairly certain that the factory will be built and operated on the cooperative plan, similar to other Exchange organizations. The canned product will be marketed by the Florida Citrus Exchange under the Sealdheart trade name.

In answering advertisements, say you saw it in *The Citrus Industry*.

ARCADIA TO HAVE CANNERY

Plans for the erection of a grapefruit cannery factory at Arcadia were formulated last week by representatives of the DeSoto County Citrus Sub-Exchange. Harold Crews, Sub-Exchange manager, announced the plant will be completed in ample time to start operations at the first of next fruit shipping season. It will be operated on the co-operative plan by the various associations and special shippers in the Sub-Exchange. Its product will be marketed by the Florida Citrus Exchange under the Sealdheart brand. The cannery will have a capacity of 500 cases per day.

FRED THOMAS**National Detective Agency**

Licensed and Bonded
Civil and Criminal Investigations
TAMPA, FLORIDA
P. O. Box 1582 Phones, 4140-2224
The Largest and Best in the South



Tampa Auto Electric Co.

1117 Franklin St. Tampa, Fla.

MYERS GARAGE DOOR HANGERS

WHERE space is valuable use Myers Garage Door Hangers. They slide the doors on inside, around curved corners - no space wasted. Satisfactory for doors on any building. Most practical space-saving device made. The Myers trade-mark guarantees quality on complete line of Pumps, Water Systems, Door Hangers and Hay Tools. See your dealer or write us.

THE F. E. MYERS & BRO. CO.
507 Church Street, Ashland, Ohio

HOTEL HILLSBORO

Tampa, Fla.

TOP O' THE TOWN

European Plan, Fireproof 300 Rooms With Baths

THE CENTER OF TAMPA



SENATE

That good taste in Senate Coffee is the result of the careful blending of the best coffees.

If you are not now a regular user of Senate Coffee, get a trial can at your grocer's.

"NONE BETTER"

"The Taste That Satisfies"

Tampa Coffee Mills, Manufacturers

THERE'S A REASON FOR THE SMILE

Lee DeLuxe Cords



The Lee DeLuxe Cord Tire is the product of trained artisans working under conditions where haste and a slip-shod rush for volume production are never tolerated. Logical business sense prompts the manufacturer to give Lee Tire users the uttermost in value. From the selection and preparation of the raw material to its careful building layer by layer, each tire in the making is scrupulously inspected before the finished product is considered worthy of the brand it bears. The result is a tire of handsome symmetrical appearance with extra miles of service and reserve strength built into the carcass. Endurance and resiliency are produced by experienced rubber-blending in the tread and sidewalls, and in careful determination of the number of cord plies requisite for each tire size.

Ask the Lee Dealer in Your Town

LEE TIRE COMPANY of FLORIDA, Inc.

Tampa

Jacksonville

LEE CORDS—"SMILE AT MILES"

Satsuma Growers Secure More Trees

The regular bimonthly meeting of the directors of the Satsumaland Fruit Growers' Association was held at The Pines Hotel, Monday, April 16th, with thirteen out of the seventeen directors present.

The secretary reported that he had been able to buy for the members 35,000 Satsuma trees to be planted next winter. This is in addition to the trees which have been bought by the members individually, and assures a large planting for this section for the coming year. Secretary reported further that he had purchased for the members, at quite advantageous prices, over 100 tons of fertilizer for this year's use.

A critical point was acted on at this meeting. The association received an application for membership from a resident of Holt, Florida, which they regretfully felt disposed to decline. Under the constitution of the Satsumaland Fruit Growers, the territory was limited to that part of Florida between the Apalachicola and Choctawhatchee Rivers. This was done because the Fruit Growers are particularly anxious to make their association strong and effective and they felt that the territory they have adopted is about as big as they can handle. They do not want to be exclusive and are very anxious to have Satsuma growers, in other sections, organize, after which a super organization might be formed.

The Fruit Growers had been asked to endorse the Kennery bill for licensing and controlling commission merchants. The directors voted not to endorse this bill, feeling that too much regulatory legislation has already been enacted.

A design for letter heads, which will afterward be used for labels, was adopted. The design represents a cornucopia of fruit spilling out all over the section of Florida covered by the Association activities.

As both the President and Secretary of the Fruit Growers, William L. Wilson and Wm. A. Sessions, were to address the meeting of the Florida State Horticultural Society in Orlando last week, they were instructed by the directors to invite and urge the Horticultural Society to hold their 1924 meeting in Panama City.

After a fish dinner at the Pines and a trip around the Bay to visit fruit groves, the meeting adjourned to meet two months hence in Bonifay.

"A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit."—Matthew 7:18.

FLORIDA GRAPEFRUIT AND ORANGES APPRECIATED

IN MEXICO

That Florida citrus growers should have representatives in all important western cities, where the people are willing to pay a much higher price for Florida fruits than for the citrus fruits from other sections, is the belief of Dr. R. B. McLaws, of 306 E. Park Avenue, Tampa, who is temporarily located at Cusihuiriachic in the State of Chihuahua, Mexico.

In a recent letter to his sister, S. T. McLaws, in Tampa, Dr. McLaws writes as follows:

"We have to pay \$5.70 a box for Florida grapefruit in El Paso, Texas. They are much better than the California grapefruit, and the oranges are a long way superior. The Florida citrus growers don't realize what they have. They should have representatives in all the western towns."

In view of the fact that people in northern Mexico journey to El Paso to buy Florida citrus fruits at a much higher price than they would be obliged to pay for Mexican fruits or for the citrus fruits of California and Arizona which come into competition with the Florida fruit, is the best possible evidence of the quality of the Florida fruit and the appeal which they make to the palates of all consumers. Dr. McLaws believes that in spite of excessive freight rates to western points, Florida citrus growers would do well to push their products more systematically in the markets of western states.

The Florida Bankers' Association recommends: The growing of more forage crops for winter feeding of live stock; diversification instead of specialization in farming; the treatment of hogs against cholera; the better grading and packing of fruit and vegetables; the growing of some cotton and the use of the Florida method by the weevil control.

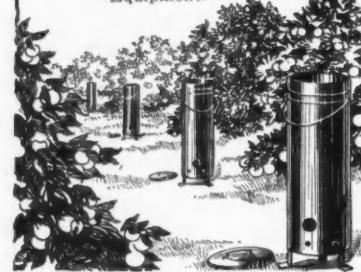
"From the experience of those counties employing county agents we would suggest that experienced, scientifically-trained men could be so employed by every county in Florida to good purpose."—State Bankers' Ass'n.

The secret of success in growing peanuts for profit lies in plenty of good seed, well-drained and well-prepared soil, plenty of fertilizer and lime where needed, and rapid, clean cultivation.

PlaySafe

KINNER COKE HEATERS have positively proven their effectiveness, in protecting Florida groves from damage by frost. Because of their efficiency, low first cost and economy of operation, they offer the very best means available for insuring citrus trees, fruit and truck crops against frost damage. KINNER COKE HEATERS send out an intense radiant heat that frost can not penetrate, thereby protecting buds, blossoms and the tenderest growth. Write at once for full particulars.

Kinner Machinery Company
Gulf Avenue, Dunedin, Florida.
World's Largest Manufacturers
of Fruit and Vegetable Packing
Equipment.



CENTAUR SMALL FARM TRACTOR

Displaces the Horse on the small farm. Pays for itself, in the saving of time, labor and Horse Feed. Makes the hard jobs easy. "New-Way" Air Cooled Motor, Hyatt Roller Bearings, Bosch Ignition, Automatic Governor, 13 inches Axle clearance.

Plows 7 inches Deep in Clay Sod
Riding Attachment for Harrowing, Dragging, Planting, Cultivating, Mowing, etc. A portable Power Plant for Sawing Wood, Grinding Feed and doing the many power jobs on the small farm. Costs only 8 to 10c per hour to run. Has REVERSE—

Backs On Its Own Power

4 years' successful performance has proven the CENTAUR the most economical, reliable and efficient small Tractor made. LIBERAL TERMS. Write today for our special proposition.

THE CENTRAL TRACTOR CO.
31 Central Ave., Greenwich, O.



GENUINE GERMAN MAUSER

Latest model 9 shot automatic. Standard cartridges like this fit in pocket—
World's famous Luger
90 cal. \$20.75—Hand
Ejector Revolver
evening cylinder 13
cal. \$16.00—28 cal. \$17.00. All brand new latest
models. Guaranteed genuine imported.
Pay on Delivery **SEND NO MONEY**

Satisfaction guaranteed or money promptly refunded.

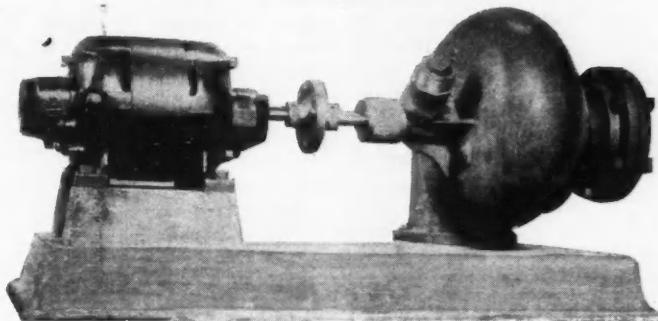
\$12.95
25 cal. \$13.95
32 cal. \$13.95
28 cal. \$13.95
38 cal. \$13.95
42 cal. \$13.95
Military French Automatic, 38 cal. 10 shot
magazine FREE, \$11.00. Just like you
see in the picture. Top German Revolver,
32 cal. \$8.00 38 cal. \$8.00.

Universal Sales Co. 165 B'way, Dark 641 New York

In answering advertisements, say
you saw it in The Citrus Industry.

Water Power

"NATURE'S PERPETUAL MOTION"



NO WORRY, REPAIRS OR OPERATING EXPENSES

THE TURBINE

The turbine is of the horizontal central intake type, purely a reaction wheel combined with a suction discharge. The revolving of the rotator creates a vacuum in the turbine casing allowing the water to enter the rotator against no back pressure.

The turbine contains only one moving part, which, aside from the shaft revolving in the bearings, touches no other part of the machine. The water enters the center of the rotator equally all around, so there is no side pressure on rotator shaft in any direction; neither is there any end thrusts to be taken care of. The shaft is cold-rolled steel; bearings die-cast white bronze. Rotator and distributor are cast from a non-corrosive alloy, and blades are cut on a universal milling machine, assuring exact areas of water passages and correct curvature of blades.

Dynamometer tests show an actual efficiency of 85 per cent of the theoretical power of the water used through these turbines.

PATENTS PENDING

The Couch Hydro-Electric Unit (illustrated above) is the result of several years' study, research and experimental work to produce a compact, noiseless, and efficient Hydro-Electric Plant for use in connection with artesian wells or other sources of water power.

This Unit is designed to operate at 600 to 800 R. P. M. on heads from eight to twenty feet or more, consequently there is ample pressure left for all domestic purposes.

Turbine parts are not affected by salt or sulphur water. The volume of water used in these turbines is usually about one-third of the open flow of an artesian well.

Turbine is direct-connected to generator by a flexible self-aligning coupling, which allows the armature of the generator to assume its proper magnetic centers. Both turbine and generator are mounted on one cast iron base as a unit.

We manufacture these Hydro-Electric Units in capacities from 150 watts up, in either 32 or 110 volts, for use on 3-inch wells or larger, or on other sources of water power.

Installation of these units is a very easy matter, due to their unit construction.

The suction head of draft tube or drain is practically equal to head pressure, so that the units can be located well above the tail race without sacrificing any power.

**LET YOUR ARTESIAN WELL ILLUMINATE AS WELL
AS IRRIGATE**

Manufactured in any size, to give service to small and large homes, hotels and even entire resorts.

J. M. Keely Supply Company
Distributors

TAMPA

FLORIDA

Manufactured by
COUCH MANUFACTURING CO., GRANT, FLA.
Dealers Wanted in Every County in Florida

Dust for Control of Cabbage Aphis

By A. W. Morrill, Ph. D., Consulting Entomologist

The cabbage aphis is a well known pest of cabbage, cauliflower, turnips and other cruciferous plants. The bodies of the insects are grayish or yellowish green in color with brown or black markings, the general color being distinctly whitish owing to a white powdery coating. While in the case of the melon aphis, an equally well known pest of garden and truck crop plants confining its attack to cucurbits, no true sex forms nor eggs are known, the cabbage aphis has true males and females and eggs in addition to the so-called wingless viviparous females which give birth to live young. The young become full grown in about twelve or thirteen days with summer temperatures, live about 45 days and give birth to about 40 young. The winged forms are shorter lived and lay only two or three eggs each or give birth to ten or twelve young. A species frequently associated with the true cabbage aphis, especially in the Southern States, is the turnip aphis. The two species attack the same food plants and are similar in appearance. The turnip aphis, like the melon aphis, has no male forms. A third species of aphis which sometimes attacks cabbage injuriously is the spinach or green peach aphis. The treatment herein recommended is effective against all three species.

Until the last two or three years spraying with nicotine soap solutions has been relied upon in the control of the cabbage aphis. Recent experiments have thoroughly demonstrated that nicotine dust is more effective and more economical than liquid sprays for this pest. Valuable information along this line based on experiments conducted in Southern California was included in Circular 154 of the U. S. Department of Agriculture by Mr. Roy Campbell. His experiments may be summarized as follows:

1. It was determined that for commercial purposes the 5 per cent strength (5% of 40% nicotine sulfate) was the most satisfactory.

2. Using an American Beauty duster one man covered an average of two acres per day, using 30 pounds of dust per acre on cabbages less than half grown.

3. With dust costing (1920) fifteen cents per pound it cost \$6.15 per acre to dust cabbages less than half grown and \$9.35 per acre to dust cabbages more than half grown. Nicotine sulfate and soap solution applied with a power sprayer cost \$12 per acre.

4. With the liquid spray it was estimated that not over 70% of the aphis was killed while with the dust the average killing was estimated at "90% or over."

More recent experiments have been conducted by the New York Agricultural Experiment Station of Geneva. Again the dust insecticides proved their superiority over the liquid applications. "From the standpoint of economy and effectiveness" nicotine dust applied with a "hand bellows duster" (the American Beauty Duster was the machine used in the experiments) proved to be the "most satisfactory treatment." The yield per acre was increased from 4 to 6 tons according to the treatment. Special attention was given to a combined dusting treatment for the cabbage aphis and cabbage worms. The following paragraphs are quoted from the report of Professor P. J. Parrott, Entomologist of the New York Experiment Station:

"The experiments with the cabbage aphis (*Aphis brassicae Linnaeus*) provided for tests with dusting and spraying mixtures with different ratios of nicotine, in which all available types of machines for applying liquid and powdered insecticides were used. Soap and nicotine at standard strength, sulfur-lead arsenate (90-10) and lime dusts, containing 0.5, 1.0, and 2.0 per cent nicotine respectively (1%, 2% and 5% commercial 40% nicotine sulfate) were toxic to the cabbage aphis. Two applications gave excellent control, resulting in yields of cabbage which were from 4 to 6 tons per acre according to the kind of treatment in excess of those of the check plots."

"From the standpoint of economy and effectiveness, the most satisfactory treatment was a lime preparation (calcium hydrate) containing 2.00 per cent nicotine, applications being made at the rate of 20 pounds per acre with a 'hand bellows duster.' With power dusting machinery, from 35 to 40 pounds of material were required to secure effective control. Considering the results as a whole, dusting appears to be a very promising system of treatment for controlling the cabbage aphis. It has made a strong appeal to leading cabbage growers in this area who heretofore have been very lukewarm towards spraying as a method of combating aphis. In the immediate vicinity of the experiments it has been estimated that dusting materials to the value of approximately \$8,000 were applied to cabbages."

(Continued on Page 36)

H. Harold Hume, Wm. P. Simmons,
President Vice-President
D. A. Morrison, Jr., Secty. & Treas.
**BEST FERTILIZERS, INSECTICIDES,
SPRAYERS, POULTRY SUPPLIES**
Honest Goods, Fair Prices, Prompt Ship-
ment. Ask your neighbor—He Knows
"Get new Fall Price List before Buying"
E. O. PAINTER FERTILIZER CO.
Jacksonville, Florida.

Prepare Now for the Planting of Your Orange or Grapefruit Grove

While Rutherford B. Hayes was president of the United States, before Bloxham was governor of Florida, Buckeye Nurseries were leaders in the citrus industry of this state—just as they are today.

For forty-three years Gillett-grown trees have been producing the widely-heralded, big-money revenues in the profitable orange and grapefruit groves of Florida. Buckeye has a reputation to maintain, it will maintain it.

Buckeye's estimated production for the season of 1923-24 is nearly 800,000 trees. More than half of these have already been reserved by wise and experienced growers. It is now indicated that next year's demand for dependable citrus trees will again be in excess of the supply.

Consult Buckeye Nurseries now as to the varieties and stocks you will want to plant.

**Buckeye Nurseries,
Inc.**

820 Citrus Exchange Bldg.,

Tampa, Florida.

Largest Exclusively Citrus Nurseries in the World.

Something New In Grove Heating

The

Vlag Automatic

Heater

Gives Protection That Protects

The VLAG Automatic Frost Protector is what the Citrus Growers have been waiting for. Here are some of the features that will immediately recommend it to the grove owner.

Will burn continuously regardless of weather conditions without any attention as long as the supply of oil lasts.

Absolutely dependable.

Oil containers of a capacity sufficient to keep the heater in operation from 20 to 50 hours; by replacing empty container with full one the heater is again ready for an additional 20 to 50 hours firing.

Oil containers can be changed without extinguishing the heater.

Can be lighted in one second.

Easily regulated to give any degree of heat desired up to its maximum capacity.

Produces no smoke.

Needs no cleaning for it does not accumulate carbon.

The actual performance of this heater has never been equalled by any grove or orchard heater on the market regardless of type or cost.

Radiates more heat than any other heater.

Heats closer to the ground.

Is absolutely water-proof.

Water in the oil has no detrimental effect on the performance of the heater.

Because of greater heat radiation fewer heaters are needed per acre.

Guaranteed for ten years against rusting out or any defect in material or workmanship.

We are ready to prove our claims by demonstrating this heater in competition with any or all other types of orchard or grove heaters.

Phone, Write or Wire.

Manufactured by

Keller Heating Co., Oldsmar, Fla.
Agents

Piet Vlag, West Tampa
General Distributors

**DUST FOR CONTROL OF
THE CABBAGE APHIS**

Continued from page 34.

"For the control of cabbage aphis and cabbage worms we prefer, for the present, the formula which provides for five pounds nicotine sulfate, 15 pounds of powdered lead arsenate or calcium arsenate, and 80 pounds of hydrated lime. If the caterpillars are not very numerous, it is believed that the arsenical may safely be reduced to 10 pounds."

THE CITRUS INDUSTRY

The cabbage aphis is frequently held in check by various natural enemies, including parasitic wasps, syrphus flies, and lady bugs. These are nearly always present wherever the cabbage aphis is abundant and when a large percentage of the aphis is killed by the dusting treatment above recommended the natural enemies are able to accomplish almost complete eradication in many cases.

There are enrolled in the home dem-

onstration clubs in Duval county 234 girls in sewing, 100 boys and girls in food and bread work, 98 in poultry, 11 in rabbit, 8 in home beautification, 8 in gardening, 6 in canning, 3 in pantry, 2 in fruit and 1 in grape. Of these 95 per cent have actually completed the year's program with an average grade of 85. Thirteen girls were selected to attend the annual short course for club girls in Tallahassee.

**For Bigger,
Better Crops
Use**

**BRADLEY'S
FERTILIZERS**



*Built Up to a Standard
Not Down to a Price*

**THE AMERICAN AGRICULTURAL CHEMICAL CO.
916 GRAHAM BLDG., JACKSONVILLE, FLA.**

**SHOULD ENCOURAGE
THE FRIENDLY FUNGI**

(By County Agent Childers, of Brevard County)

Citrus fruit industry is without doubt one of Florida's greatest industries, and it is growing by leaps and bounds. Approximately fifteen million boxes of fruit have been shipped during the current season.

The time was when the Indian River section led all other sections in both quantity and quality of fruit shipped. But in recent years the Ridge section of the state has far outstripped us in quantity production. We still maintain the lead in quality, but other sections are gaining on us along that line. It behoves us to be stir ourselves and organize for our own protection.

It is absolutely impossible to make first-class fruit in a grove infested with insect and fungi pests. Likewise it is impossible for a person to eradicate the pests in his grove if his neighbor insists upon harboring his enemies just across the fence. There are groves in this county that are literally alive with various bugs, flies, beetles and scales. Through co-operation these pests can be eliminated, but without co-operation they are going to get the upper hand and eliminate us as contenders in the race for quality production.

I do not wish to be misunderstood in regards to spraying. I am a believer in spraying, but I am also a strong believer in utilizing the natural enemies of the insects infesting our groves. I have seen one or two groves in the county wherein the friendly fungi are controlling the insect pests, but groves of this type are few and far between. Through intelligent spraying and propagation of friendly insects and fungi we can improve the grade of our fruit fully fifty per cent.

NOTICE

The Florida State Horticultural Society still has in stock a limited number of back numbers of the Proceedings of the Society. These books cover the period from 1905 to 1922, with the exception of years 1912 and 1916.

The subject matter in these Proceedings cover practically all matters pertaining to horticulture, and represent the efforts of many practical growers covering years of actual experience. This is a splendid opportunity for the members of the Society to complete their set of these books.

These books may be secured from the Society at one dollar each. Address Frank Stirling, Librarian, Gainesville, Florida.

THE CITRUS INDUSTRY

Thirty-seven

SPRAY or DUST

Regardless of which method you choose or employ, the essential factor of success is your EQUIPMENT.

It has been the consistent policy of The Gulf Fertilizer Company to anticipate the requirements of the grower in the matter of up-to-date, dependable, serviceable spraying and dusting machinery, but before offering any type of equipment to our friends and customers we have satisfied ourselves of its superiority and merit.

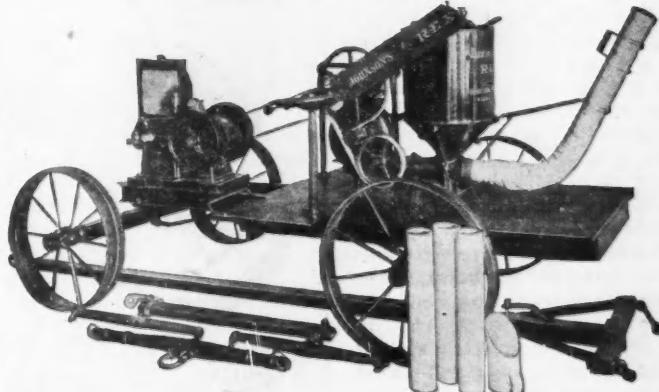
In recommending HARDIE SPRAYERS and JOHNSON DUSTERS for your use we offer equipment that in our judgment is best fitted for your needs, as proven by exhaustive tests under identical conditions with those which confront you.

The New HARDIE Sandproof Sprayer



Light weight, big capacity, high pressure, simple in construction yet sturdy throughout. Sandproof, troubleproof, foolproof. Equipped with the famous Cushman "light weight" engine 4 h. p. weight 190 lbs.

Johnson's Rex Dusting Outfit



An efficient power duster especially designed for grove work. Capable of covering from 50 to 60 acres per day. A marvel for speed and efficiency. Perfect distribution, delivering any feed desired from light trace to dense fog, as needed. No waste of material; can be instantly regulated for large or small trees. Hopper holds two bushels. Equipped with the famous Cushman engine with impulse starter and magneto.

Let us acquaint you with complete details relative to either or both of the splendid machines shown above. Investigation places you under no obligation; we will gladly answer your questions and tell you where machines may be seen in actual operation. Address

The Gulf Fertilizer Co.
6th Floor Citizens-American Bank Building
TAMPA, FLORIDA

Thirty-eight

IN NEW QUARTERS

The Gypsum Industries will move into its new offices on May 1st, to the America Fore Building, 844 Rush Street, Chicago. The change provides more office space to take care of expansion.

The Gypsum Industries is a service bureau maintained by gypsum producers and its work consists of research, promotion and advertising of gypsum products for agricultural purposes and for building uses on the farm.

It is a member of architectural and engineering organizations, including the American Society for Testing Materials, and maintains a research fellowship in the United States Bureau of Standards and five agricultural fellowships in state universities.

Agricultural and engineering departments are maintained for the benefit of the public and authentic information on the proper use and application of gypsum products is given without cost or obligation.

Literature on the various uses of gypsum in its many forms is sent free upon application to The Gypsum Industries, 844 Rush Street, Chicago, Ill.

**FLORIDA A HORTICULTURAL
PARADISE**

Continued from page 7.

peals to me, and I hope it does to you, and that we may get busy and inaugurate one that will be generally observed throughout South Florida.

What shall you plant, you ask? Plant Cocos Plumosa and Washingtonia, and if possible, if you are in a partially protected location, plant by all means an avenue of Royal Palms or Cocoanut Palms; plant some of the Phoenix group, the fast growing. Take a chance on the Royal Palms, take several chances, and while you are taking chances give the plant itself a chance, and protect it while it is young and tender and it will reward you many times for the trouble, and be a joy to you and to many others also. Give them food to grow on in summer and plenty of warmth in winter when needed.

Let us have Plant Palms Week. We could negotiate for a large quantity, and have the cash on hand to pay for them, at a greatly reduced price. A thousand or ten thousand palms would be an object for the nurserymen, and would transform the state. We will never be any younger, and to plant palms now will insure the beauty of the state in the years to come. Avenues and avenues of palms will make

THE CITRUS INDUSTRY

the state most beautiful. Let us make the thought of Florida suggest Palms, as it does now suggest the Florida Orange.

DIXIE FLYER

Summer Excursions

Great Lakes—Colorado—California—Pacific Northwest—Yellowstone—Rocky Mountain Yosemite and Glacier National Parks

Effective May 15th, summer tourist tickets at extremely low rates will be placed on sale to many points in the north and west. Such tickets permit stopovers, diverse routing and bear final limit October 31st.

Let us plan your northward journey by a route of scenic and historic interest.

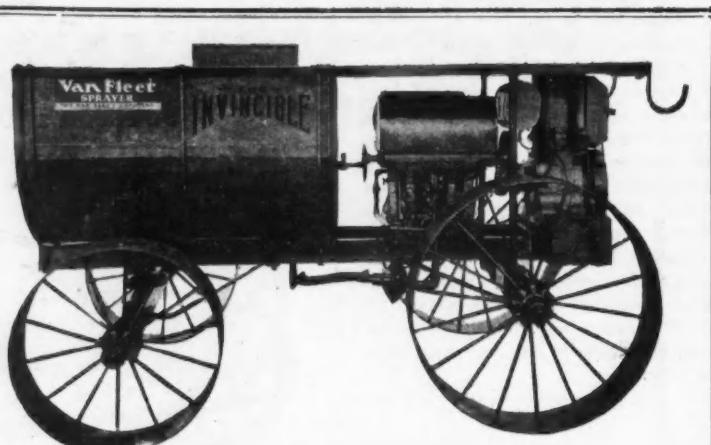
Via Atlanta—Chattanooga—Lookout Mountain—Nashville

"THRU THE HEART OF DIXIE LAND"

For illustrated booklets and complete information, address:



A. Rice King, F. P. A.
N. C. & St. L. Ry.
516 Graham Bldg.
Jacksonville, Fla.



THE NEW INVINCIBLE SPRAYER

With a new type high pressure high duty pump and new Auto Type Engine

DUST AND SAND PROOF—RUNS IN OIL

The new Auto Type Engine is an innovation in engines for spraying machinery. It is entirely enclosed, which makes it sand and dust proof, and runs in oil.

EASILY AND ECONOMICALLY REPAIRED

All parts of this engine are interchangeable with Ford Motor parts, which means economy and prompt service in replacements.

THE PUMP

Is something new in Florida. It is also protected from sand and dust by being completely enclosed and running in oil. Prices and full details upon application.

THE VAN FLEET CO.

Florence Villa, Florida

Don't Let Melanose, White Fly, Scale Insects & Rust Mites Cut Down Your Profits

You are no doubt cultivating and fertilizing your grove as never before, in order to hold "stick," with the aid of the general rains, what will be, from all indications, the biggest crop ever produced. Your returns will not be in proportion to present favorable crop prospects unless you SPRAY to control the increasing amount of MELANOSE, White Fly and Scale, and either SPRAY or DUST to control Rust Mite. Start your schedule ON TIME. We will gladly help you select the right size SPRAYER or DUSTER and MATERIALS.

Make Your Sprayer Engine and Truck do Double Duty. Put Your Idle Equipment to Profitable Use

The staggering amount of damage and lost profits from RUST MITES can be reduced to a negligible percentage with the NIAGARA All-Aluminum Grove Duster mounted on your own truck or wagon and driven by your own engine; or if you have no sprayer at present, let us quote you on our Sprayer and Duster combination.



Fig. 1, No. 1 Complete, Operating in Orange County

Reasonably quick deliveries can be made, but your orders should be placed promptly. Prices follow:
Fig. 1, No. 1, 5 H. P. Collis, F-23 Duster, Truck with Special Drop Platform, Seat, Foot Rest,

Neck Yoke, Single and Double Trees, Complete ready for use	\$475.00
F-23 Duster and Truck, Complete as above, but without Collis Engine	\$250.00
F-23 Duster mounted on sills with drop platform, Seat, Foot Rest, Complete ready for truck or wagon, but without Collis Engine or Truck	\$185.00
F-23 Duster with flexible metal hose and discharge pipe	\$160.00
Engine of not less than 3 h. p. required to drive F-23 Duster.	

FIGURE 3, MODEL F-W DUSTER

of the same design and construction as model F-23 but with less fan capacity, requiring engine of not less than 2½ h. p., \$50.00 less than F-23 Duster.

Schnarr-Niagara Sulfodust, per cwt

\$4.00

The first Impalpable Dusting Sulphur with special spreader and sticker used in Florida. All above prices subject to special discounts for cash.

Send for February 1st price list which includes specifications of Hand, Barrel and Power Sprayers, Dusters, Spraying and Dusting Schedules and other information.

J. Schnarr & Company

Florida's Standard Oldest Line of Sprays

Winter Haven

ORLANDO, FLORIDA

Larkins

H. A. TRUEMAN, Mgr.

TAMPA

C. E. HAYWOOD, Mgr.

HOMER J. RICHARDSON, P. O. Box 2942

Decay in Citrus Lowers Value of Fruit in Markets

If the Florida citrus grower is to get on an equal footing with the California grower in the smaller markets of the country, he must pack his fruit in such a manner as to insure reasonably good condition upon arrival at markets.

This opinion is advanced by Errol M. Zorn, district manager of the Florida Citrus Exchange at New York, and one of the best known fruit marketing men of the North. Writing to H. G. Gumprecht, manager of the Manatee County Citrus Sub-Exchange about an address Mr. Gumprecht recently made before the Florida State Horticultural Society on "Prevention of Decay in Citrus Fruit," Mr. Zorn says:

"The subject is one of the most important in connection with the marketing of citrus fruit, and nothing should be left undone which will lessen the losses suffered through decay. I feel confident that the Florida grower does not realize the extent of the losses suffered because of this defect.

"It is not only the actual cash value of the decayed fruit that is sacrificed. Florida oranges have in the past acquired an unfavorable reputation because of wastage through decay, which has considerably curtailed the selling of fruit.

"No doubt many Florida growers feel that the reason Florida oranges are not used extensively during the late winter and early spring in the smaller communities is because of rail advantages that California enjoys. This may be true to a certain extent, but it has been my experience that the small-town jobber handles California oranges during the late winter and spring, generally because he is afraid that Florida oranges would show a loss in deterioration. He has learned in the past, by sad experience, that Florida oranges decay rapidly and it is very difficult to persuade him that fruit is now being handled better in Florida than it was seven or eight years ago, and the loss from decay is nowhere near as great as it was at that time.

"The average small-town jobber requires a week or ten days to dispose of a car of citrus fruit. A few years ago the average car of Florida oranges received after the middle of February would develop a considerable amount of decay during the period required for disposing of it, and that meant a loss to the jobber as well as to the retailer who bought

from him. Both the jobber and retailer found that California Navels would remain sound, as a general thing, for a considerable period of time, and for that reason both the jobber and retailer turned to California Navels in preference to the Florida product.

"During the past few years Florida has gradually worked back into the good graces of a large number of these jobbers and retailers, but if the Florida grower wants to get on an equal footing with the California grower in the smaller markets, he must pack fruit in such a manner as to insure reasonably good condition upon arrival at the terminal markets."

SOME PROBLEMS OF THE SATSUMA ORANGE GROWER

Continued from page 9.

and I hope the growers will see fit to line up with the Citrus Exchange when this time comes. Some are already talking it, and the visit of Mr. Stewart to this section last fall did much to pave the way. The Alabama Growers have a Gulf Coast Exchange which handles a good part of their production.

Banking Trees for Cold Protection on Clay Soils

This is a mooted question among the growers. On heavy clay soils a temperature in the twenties may, when the soil is moist, freeze the bank for the depth of a couple of inches and thus girdle the tree and cause the loss of the top when unbanked trees would not be touched. Again the whipping of trees in the wind may cause an air space to be left between the tree trunk and the moist bank into which cold air will settle and damage the tree.

BIG SHIPMENT OF POTASH RECEIVED

One thousand tons of German sulphate of potash, the second shipload of potash and the sixth cargo of fertilizer material from foreign lands imported by the Exchange Supply Company in the past six months, was unloaded from the steamer Freifeld at Tampa recently. Cooperative citrus growers, through this direct shipment to Tampa, effected a saving of \$2.36 per ton in this material in the item of freight alone over what would be paid on shipments through Jacksonville.

In answering advertisements, say you saw it in *The Citrus Industry*.



Service to Growers Built This Immense Business.

V-C Fertilizers come to you from the largest makers of fertilizers in the world. This big business was, and is, made possible only by superior V-C service, and the known dependability of V-C mixtures.

V-C formulas are calculated for every varied need in the care and cultivation of citrus trees. V-C experts are working constantly for the benefit and the advancement of citrus growing. The Florida division of this company is dedicated to the solution of Florida growing problems.

For nearly a quarter-century we have been serving the growers; and it is a matter of pride that many of the customers of the early years of our endeavor are today numbered among our best customers.

V-C Fertilizers aided largely in building their successes. Today they continue to rely upon them; and advise others to do likewise.

Write us your needs.

Virginia-Carolina Chemical Company

Florida Division

E. B. BROWN, Manager

Jacksonville, Fla.





Be Prepared

To do effective Spraying use a BEAN POWER SPRAYER. You get more satisfaction with a BEAN. Compare the Bean FEATURES "Point for Point" with those obtainable on other Sprayers.

1. **Bean Pressure Regulator:** This regulator is patented and used only on Bean Sprayers. With it the pressure is kept uniformly at desired point. Considerable fuel is saved, as well as wear and tear on pump. It is absolutely safe and dependable and makes possible the removal of any valve in the pump while full pressure is maintained on the air chamber and while Engine is in operation.
2. **Threadless Ball Valves:** These valves are large bell metal balls that work on reversible and removable seats. They revolve at each stroke of the pump plunger, preventing their sticking or corroding. The valve can be opened up entirely and every part removed in less than two minutes, without lowering the pressure, stopping engine or drawing liquid out of pump.
3. **Porcelain Lined Cylinders:** This is no experiment on Bean Pumps copied to meet demands of competition. It is original with Bean Pumps, put on under special secret process, and sprayer buyers should beware of imitations of this Bean Feature that have not stood the test of time. Bean Porcelain Lined Cylinders are long lived. They do not corrode.
4. **Eccentric Instead of Cranks:** Eccentrics are much more durable than cranks, because the wear is distributed over so much larger area. When, after years of use, the eccentrics do show wear, the wear can be taken up in a few moments.
5. **One-piece Steel Bed Plate Frame:** The Bean was the first sprayer offered with an all-steel frame and is today the only sprayer in which the steel bed plate frame is made in a single piece. The pump and engine is bolted to this steel frame, which will not warp or spring, thus assuring sturdiness.
6. **Underneath Suction:** With the Bean Power Sprayer it is only necessary to loosen one set screw and the whole bottom of the well comes off, so that the tank can be entirely drained in a few seconds. Besides, the level of the liquid in the tank is always higher than valves in the pump and flows into them without assistance from the engine.
7. **Other Features:** The above as well as many other features are more fully described in the large Sprayer catalogue, which we will gladly mail on request.

Three IDEAL SPRAYS for the Citrus Grove

Ideal Bordeaux Oil Emulsion

Semi-liquid in consistency. A real Bordeaux product. Used 1½ gals. to 50 gals. water gives a 3-3-50 Bordeaux mixture with 1% oil. Best for Citrus Scab and Melanoose control.

Ideal Oil Emulsion Paste

Liquid in consistency. Mixes with any hard water. Unequaled for killing White Flies and Scale Insects. Keeps indefinitely.

Ideal Lime Sulphur Solution

A pure, clear, filtered product, 32 to 33 degrees in density. The perfect spray for Red Spiders and Rust Mites. The best sulphur spray for Scab.

FLORIDA AGRICULTURAL SUPPLY COMPANY

JACKSONVILLE, FLA.

LAKE WALES, FLA.

**LAST CALL SOUNDED
TO CONTROL MELANOSE**

"The last call" has been sounded to the citrus grower, who would take measures to prevent losses to his next crop of fruit from that serious disease known as melanose. The very latest hour has been reached—or will have been reached within a few days—when spraying with bordeaux-oil may be done to prevent the ravages of the disease on the crops of fruit now forming, according to O. F. Burger, plant pathologist of the Florida Experiment Station.

Experiments in the control of melanose were conducted by Dr. Burger and the county agents of certain citrus growing counties of the state during the last two years and it was learned that spraying done from ten days to two weeks after the blossoms drop will be most effective. Spraying after the summer rains begin was found to be a waste of time, the experimenters say.

Bordeaux-oil has been found most effective for spraying against melanose. The theory of its preventing the disease is that, applied at the time mentioned, it forms a coating of the bordeaux about the young, forming fruit. This covering, if applied before the spores of the fungus causing the disease (*Phomopsis citri*), prevents the entrance to the young fruit of the spores or seed-like bodies that cause melanose. After the fruit has reached a certain size it becomes immune to the disease. Therefore, it is very necessary that the fruit be protected before this size has been reached.

Dr. Burger says that growers who have any intention of spraying to prevent melanose must do so at once, or it will be too late. County agents are in a position to give assistance in spraying.

**LITTLE CHANGE IN
CITRUS SHIPMENTS**

The weekly citrus review by F. L. Skelly, as issued from the office of American Fruit Growers, Inc., says:

The week's shipments of Florida citrus was approximately the same as the week before, while California showed an increase of about 450 cars, which is largely due to the opening of their Valencia season. Navel will be practically exhausted after this week, however, considerable stocks remain in the hands of the dealers. California Valencias are still reported to be somewhat sour and of questionable quality and indicating that this competition will not seriously affect

THE CITRUS INDUSTRY

Florida's for the present.

ORANGES: Erratic fluctuations with a net decline of 50 to 75 cents, featured the week's auction markets. However, this is not to be taken seriously as the lighter movement toward the end of the week will no doubt cause a responsive demand on next week's opening.

GRAPEFRUIT: Auction prices remained practically steady, one well-known brand reaching new high levels for the season, while ordinary grades continued to meet an indifferent reception. F. o. b. inquiry remains strong with somewhat higher prices ruling.

The remaining supplies, both of Valencias and grapefruit, which are confined chiefly to the Ridge section, will practically all be shipped by the larger marketing agencies, which should insure a judicious distribution and the careful grade and pack so necessary to hold the interest of the trade to the end of the season.

CLASSIFIED ADVERTISEMENTS
The rate for advertisements of this nature is only three cents per word for each insertion. You may count the number of words you have, multiply it by three, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

REAL ESTATE

FOR SALE: Splendid solidly bearing orange grove in one of the best orange producing sections of the state. Soil of the best to be found anywhere. Quality citrus fruits produced up to the highest standard of excellence. Reason for selling, moving away. It is an opportunity worth while to some one. Address Box 114, Citra, Fla. 2t-pd

10 ACRE ORANGE, grapefruit grove, 6 years old, Lakeland Highlands, next to Haskell Townsite on Dixie Highway, near Haskell station and packing house. Owner, H. J. Strimple, Penns Grove, N. J.

WILL EXCHANGE West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

**CALIFORNIA
\$5,000 CASH—\$5,000**

Balance 1-2 NET profits from crops.
20 Acres full bearing Navel. \$10,000 eight room house.

Chance to acquire beautiful home and profitable business with small outlay. Buyer must know citrus culture and reside on property.

Other business interests cause this exceptional opportunity.

CLARENCE GELDERT, Owner, 1765-G North Bronson Avenue, Los Angeles, California.

EARLY BEARING Papershell Pecan trees, budded or grafted and guaranteed. Great shortage this year. Write for catalog today. Bass Pecan Company, Lumberton, Miss.

WANT to hear from owner having farm for sale; give particulars and lowest price. John J. Black, 180th Street, Chippewa Falls, Wisconsin. Dec. 3t

NURSERY STOCK

FRUIT TREES—Large stock of all

kinds of fruit and ornamental trees, roses, shrubs, vines, etc. Order direct from growers. Most complete line offered in Southwest. Free catalogue. Express paid. Consolidated Nursery, Houston, Texas.

ADAPTED BUNCH GRAPES bring paying returns eighteen months after planting. Plant an acre and be independent; best commercial fruit investment in south, fruit brings highest prices. We introduced these grapes into Florida and they have been doing well ten seasons. Other adapted fruits also—tree blueberries, blackberries, figs, etc. Full information, free catalog. Adapted Nurseries, Tampa, Fla. 100-tf

PAPER SHELL PECAN GROVE. Most trees 12 and 13 years old, which is full bearing age. Good condition. Forty acres. Located near Monticello, Fla. Price \$500.00 per acre. Simpson Orchard Co., Vincennes, Ind.

FOR SALE—700 Valencia, Pineapple, Marsh 4-year buds. Probably best in state. 1000 nursery stock. Sealed bids, Dec. 20. For information apply U. S. Dept. Agriculture, Box 1068, Orlando, Fla.

ADAPTED GRAPES are planted with excellent results all through March. Free catalog. Adapted Nurseries, Tampa, Fla.

FOR SALE—Peas and velvet beans of all kinds. New bags, even weights. All peas recleaned. H. M. Franklin, Tennille, Ga. Mar.-4t

MISCELLANEOUS

WHITE WYANDOTT Cockrels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$5.00 each; also eggs for hatching \$5.00 per 15. W. A. King, Gen. Del., St. Petersburg, Florida.

FOR SALE—Dairy and stable manure, car lots. Link & Bagley, Box 2461, Tampa, Florida.

SOUTHDOWN SHEEP, White Rocks, Toulouse Geese, Guineas, Angora and Milk Goats, Circular free. Woodburn, Clifton, Va.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912, of The Citrus Industry, published monthly at Tampa, Florida, for April 1, 1923.

State of Florida,
County of Hillsborough.

Before me, a Notary Public, in and for the state and county aforesaid, personally appeared S. L. Frisbie, who, having been duly sworn according to law, deposes and says that he is the editor of The Citrus Industry, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1.—That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher, Associated Publications Corporation, Tampa, Florida.

Editor, S. L. Frisbie, Tampa, Fla.

2.—That the owners are:

Associated Publications Corporation, Tampa, Fla.

S. L. Frisbie, Tampa, Fla.

S. Lloyd Frisbie, Tampa, Fla.

B. L. Gable, Tampa, Fla.

F. L. Skelly, Orlando, Fla.

Frank Kay Anderson, Winter Park, Fla.

B. C. Skinner, Dunedin, Fla.

3.—That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities, are:

Chas. Scott.

S. L. FRISBIE, Editor.
Sworn to and subscribed before me this 29th day of March, 1923.
(Seal) ARTHUR M. SCHANZ,
Notary Public.

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The Citrus Industry

U. S. Department of Agriculture

THE ONLY PUBLICATION IN THE WORLD
DEVOTED EXCLUSIVELY TO CITRUS FRUITS

Issued Monthly
Representative of every interest—
Representing no special interest.

VOL. 4, NO. 6

TAMPA, FLA., JUNE, 1923

15 C. A COPY



Experienced Growers Employ This Service

Within the short period of four years AFG operations in Florida have expanded to very large proportions. This is due largely to the endorsements given AFG service by experienced growers who have had opportunities for comparison.

Growers with many years experience are quick to appreciate the advantages of widest distribution, of individually trade-marked fruit nationally advertised, of prompt and adequate accountings, of expert supervision, and of economical operation.

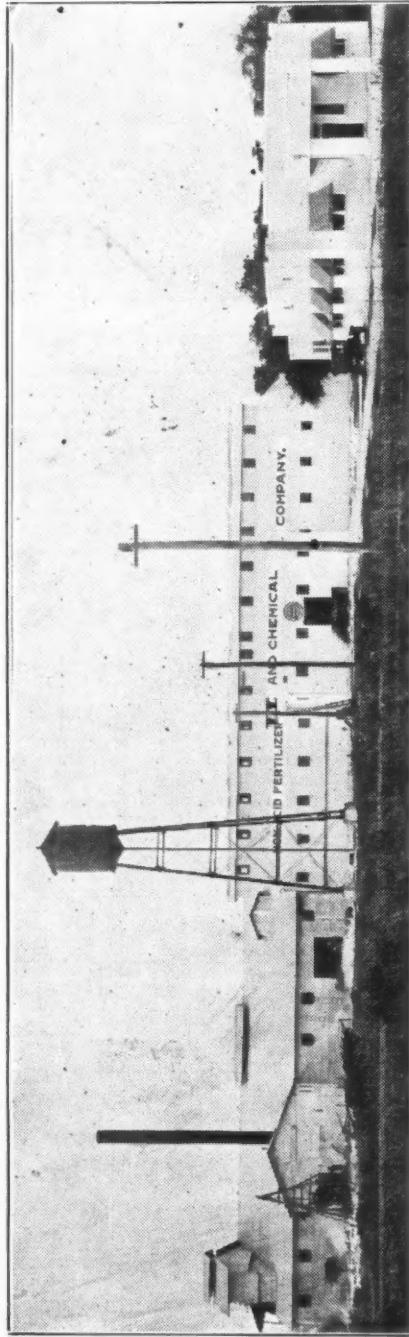
The large number of such experienced growers now employing AFG service for the sale of their fruit is a substantial testimonial to its efficiency.

American Fruit Growers Inc.

Orlando



View of Our Plant at Lakeland



Proper Fertilization is a Great and Growing Question

We want to discuss this problem with every grower in Florida and explain to you this new process of manufacture by which we are able to furnish a NON-ACID Fertilizer and secure a NON-ACID available phosphate which gives a finished fertilizer WITH THE ACID LEFT OUT. When "NAPP" Brand Fertilizers are used, the result is a sweetened and improved soil, instead of increasing acidity as is the case with an acid fertilizer.

We invite the fullest investigation of our process and the results growers have obtained in the short time our product has been on the market.

Inquiries we are receiving from all sections of the world is rather a convincing evidence of the correctness and value of our exclusive process of manufacture.

VISIT OUR FACTORY—IT WILL COST YOU NOTHING TO INVESTIGATE.

OUR RESEARCH DEPARTMENT IS IN CHARGE OF A SOIL EXPERT WHOSE SERVICES ARE FREE TO GROWERS.

Non-Acid Fertilizer & Chemical Company

Mfrs. of Quality Fertilizers With the Acid Left Out
LAKELAND FLORIDA

"GLEN TREES GROW"

Citrus Trees of Authentic Parentage

The varieties of citrus trees we propagate are selected strains, from OUR OWN GROVES OF MORE THAN 250 ACRES, with a straight line history going back to AN INDIVIDUAL TREE OF KNOWN MERIT.

Care is taken to select well developed buds from trees of AUTHENTIC PARENTAGE---thus making sure that our young trees are true to name—QUALITY TREES IN EVERY PARTICULAR.

Now is the time to clear and thoroughly prepare your land. Plant a cover crop and assure yourself of the delivery of your citrus stock by placing your orders now for delivery after December first.

Glen Saint Mary Nurseries Company

Winter Haven

Florida

Glen Saint Mary

**DON'T FORGET THAT OVER FORTY YEARS OF
SATISFIED CUSTOMERS HAVE MADE THIS THE
LARGEST CITRUS NURSERY IN FLORIDA**

A marvelous increase in distribution of Sealdsweet Florida Citrus Fruits



This season Sealdsweet Florida grapefruit and oranges have been sold in twenty-five per cent more carlot markets than last year.

Sealdsweet fruits now are distributed in twice as many carlot markets as five years ago; in several times as many as ten years ago.

This increase in our distributing capacity shows that we, the growers who cooperate in the Florida Citrus Exchange, have been fully awake to the importance of expanding markets to take care of increasing production.

First we developed consumer demand for Sealdsweet grapefruit and oranges by aggressive advertising of the food and health values—for years and years carrying on this essential educational effort altogether by ourselves.

Next we gradually enlarged our sales force to properly cover the sections of the United States wherein we found potential demand for Florida citrus fruits. Today we are in position to sell in every portion of the country which affords a profitable outlet.

All this has been accomplished in the face of destructive competition from Florida growers who market through non-cooperative channels. We have sold Sealdsweet for more money than other Florida marketing agencies got for fruits of comparable grade, pack and quality.

We regard our work as little less than marvelous in view of the facts as explained herein. Obviously, however, as the Florida crop of grapefruit and oranges increases in volume, there must be even greater progress in enlarging consumption and extending distribution.

Why not help us do the job, to your benefit and ours, by working in our ranks rather than against us?

Join the Florida Citrus Exchange and let your fruit have the benefit of its distribution and selling service. Consult the manager of the nearest association or sub-Exchange or write the business manager at Tampa, Florida.

**The FLORIDA
CITRUS EXCHANGE**